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Ontario Energy Board

REPORT TO HIS HONOUR
THE LIEUTENANT GOVERNOR IN COUNCIL

in the matter of a reference under
Section 36 of the Ontario Energy
Board Act concerning natural gas
used as a feedstock in Ontario

E.B.R.L.G. 26
February 10, 1984



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Ontario
Energy
Board

E.B.R.L.G. 26

IN THE MATTER OF the Ontario Energy
Board Act, R.S.O. 1980, Chapter 332;

AND IN MATTER OF a reference by the
Lieutenant Governor in Council
concerning natural gas used as a
feedstock in Ontario.

BEFORE: S. J. Wychowane
Vice-Chairman and
Presiding Member

R. H. Clendinning
Chairman

D. A. Dean
Member



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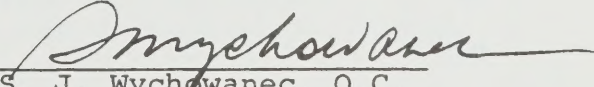
February 10, 1984


To His Honour the Lieutenant Governor in Council

The Ontario Energy Board was required, by Order-in-Council 316/83, to examine and report on certain aspects concerning natural gas used as a feedstock in Ontario. The Board submits its report herewith.

Respectfully submitted,

ONTARIO ENERGY BOARD


S. J. Wychowanec, Q.C.
Vice-Chairman and
Presiding Member


R. H. Clendinning
Chairman

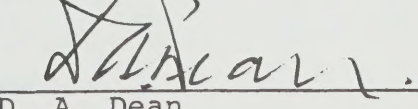

D. A. Dean
Member

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EXECUTIVE SUMMARY

The Reference to the Board and the Hearing

The reference to the Board was made by the Lieutenant Governor in Council by Order-in-Council, O.C. 316/83, dated February 9, 1983, which is reproduced in full in the Introduction to this report. Following the issuance of appropriate notices, as well as a list of issues prepared by Board Counsel as guidelines, all pre-filed evidence was received by July 11, 1983, from interested parties. The hearing began on July 18, 1983, and lasted for 24 hearing days. Final written submissions and replies were filed by October 21, 1983.

The Subject of the Report

The terms of the Order-in-Council required the Board to examine and report on a number of matters affecting industries in Ontario which use natural gas as a feedstock. These are termed the Affected Industries and consist of C-I-L, Cyanamid, Nitrochem, Inco and Sunoco which together currently consume about 32 Bcf per year of natural gas. The three manufacturers of ammonia-based products, which are the largest users among the Affected Industries, are C-I-L, Cyanamid and Nitrochem. Their current combined consumption is about 25 Bcf per year. The total (all uses) natural gas consumption in Ontario is about 670 Bcf per year.

Briefly, the matters upon which the Board was directed to report are:

- the market environment in which the Affected Industries operate;
- the effects of natural gas prices on the selling prices of the end products of the Affected Industries and the competitiveness of the Affected Industries in North America;
- the effects on the Ontario gas utilities and their customers of arrangements made by the Affected Industries for natural gas purchases differing from their current supply arrangements;
- the nature, extent and causes of any disparity in prices and rates among the Ontario gas utilities for natural gas provided to the Affected Industries, and on the desirability of introducing a common rate across Ontario for natural gas used as a feedstock.

The Structure of the Report

The structure of the report follows the pattern of the Order-in-Council and is divided into sections, as follows:

- Overview
- Effect of Natural Gas Prices on End Product Prices

- Alternative Supply Arrangements
- Disparity in Prices and Rates, and the Desirability of a Common Feedstock Rate

In addition, there are three Appendices which may be helpful to readers of the report. They are:

- Appendix A: A list of issues prepared by Board Counsel;
- Appendix B: A list of participants in the hearing; and
- Appendix C: A glossary of terms used in the hearing.

Overview of the Market in which Affected Industries Operate

i) Ammonia Industry

Ammonia-derived products of the North American industry are interchangeable commodities. They are influenced by international market forces and are generally not subject to tariff barriers in international trade.

Obtainable market prices for the products are driven by competition, not by costs of production -- of which the cost of natural gas is by far the largest component.

The profitability of the industry is therefore closely related to the cost of gas, which is the only economically feasible feedstock for ammonia-derived products in North America. The ammonia industry is typically cyclical and is currently depressed, with significant recovery not expected in less than two years. Approximately one-third of U.S. ammonia production capacity has closed down in recent years.

Although all three Ontario ammonia producers, C-I-L, Cyanamid and Nitrochem, are suffering financial difficulties, only limited production cutbacks have so far occurred.

ii) Other Industries

Inco and Sunoco, which also use natural gas as feedstock, are regarded as Affected Industries. Dow is not so regarded because its use of gas, though large, is not as a feedstock. However, the market prices of the products of all three companies are governed largely by competition rather than by manufacturing costs. To that extent these companies are similar to the ammonia industry.

Effect of Natural Gas Prices on End Product Prices

In the short term the selling prices of the products of the Affected Industries are not influenced by the price of natural gas, but in the long term they are. The price of gas affects the profitability and consequently the competitiveness of the Affected Industries, which have suffered dramatic increases in their gas costs since 1979.

The cost of gas to Ontario ammonia producers is higher than that to their competitors in the United States and in Alberta and outside North America. The cost

disadvantage is expected to continue through 1986. Future gas costs in Ontario and the United States are very difficult to predict, being dependent on government policies as well as market conditions.

Ontario ammonia producers are suffering financial hardship, though not all to the same degree. Financial hardship will continue for these companies and for other large-volume natural gas users as long as the price of gas remains inflexible compared to the variable prices of the end products of these industries.

Alternative Supply Arrangements

Direct purchases of natural gas by an industry situated in Ontario would essentially necessitate the purchaser to acquire an interest in Alberta gas production, obtain a permit to remove the gas from Alberta, contract with TransCanada PipeLines (TCPL) for transmission service and contract with the Ontario distributor to move the gas within Ontario to its plant.

Direct purchases, which are long-term strategies rather than short-term remedies, are potentially profitable for the direct purchaser as an equity owner in Alberta gas production. It would take at least 18 months to establish a direct purchase arrangement, and additional time to pay out a successful investment (which may be large) before profits

become available. A large increase in overall gas demand in Ontario is unlikely to result from direct purchases.

Direct purchasing would require that the Ontario utilities' demand charge obligation to TCPL be transferable to the direct purchasers. As well, TCPL would have to be able to renegotiate with Alberta gas producers its minimum offtake volume obligations.

Direct purchasers would assume greater responsibility and risk for accurate forecasting and be responsible for arranging back-up supplies.

A number of aspects concerning direct purchasing would come within the purview of agencies of the Alberta Government, the position of which is unknown at this stage.

The Board believes that direct purchases should be open to all who are prepared to make the investment and take the risks, and that they would be useful commercial measures capable of strengthening Ontario industry. As such, they would be in the public interest provided Ontario utilities and their customers would not be disadvantaged. Each case should be considered on its merits in public hearings before the Ontario Energy Board. The Board therefore recommends that the Government of Ontario endorse direct purchases on this basis. While firm proposals on the part of the proponents of direct purchases remain to be formulated, the Board believes that endorsement by the Government of Ontario

will be followed by thorough investigation of all aspects of direct purchasing by the proponents, with the objective of commencing formal negotiations as soon as possible.

The Board also believes that the Government should give consideration to supporting the proponents of direct purchasing before the relevant regulatory bodies, should amend the Ontario Energy Board Act as necessary to fully implement direct purchases, and should authorize this Board to receive and review in public hearings proposed direct purchase arrangements concerning natural gas to be delivered for use in Ontario. The Board would approve such arrangements if they were in the public interest and adequately protected the interests of other parties in Ontario.

Disparity in Prices and Rates

Disparity in rates among the three Ontario utilities has existed for some two decades. In recent years, each of the three Ontario ammonia producers might have had a cost advantage at any given moment. No single ammonia producer has had a continual cost advantage for 20 years, and none has enjoyed a rate advantage exclusively. Moreover, the differences in gas costs to the three ammonia producers have not been significant. They are caused by differences (among the utilities) in classification of gas

supply costs, cost allocation methods and system characteristics; as well, the timing of the increases granted by the Board to each utility has had an influence.

Common Feedstock Rate

Differences between ammonia producers and other industrial users of natural gas are not in our view sufficient to distinguish ammonia producers for purposes of a feedstock rate.

A common feedstock rate is not believed to be in the public interest and is not supported or recommended by us. If an industry needs assistance we believe that a selective subsidy is preferable. We recommend that if the Ontario Government deems such assistance to be appropriate, it should be made available for a fixed period and be provided from government funds and not by the remaining customers of the utilities. The feedstock users, in such an event, should be required to submit their books to provincial audit.

Recommendations

The Board's recommendations in full are as follows
(Page Numbers in brackets):

1. *That direct purchasing of natural gas, regardless of end use, by any Ontario user be endorsed by the Government of Ontario as being in the long-term public interest, provided the interests of the Ontario utilities and their customers can be protected (p. 89).*
2. *That the Government of Ontario give consideration to amending the Ontario Energy Board Act as required to fully implement direct purchases (p. 90).*
3. *That the Government of Ontario give consideration to supporting the proponents of direct purchasing before the relevant regulatory bodies in other jurisdictions (p. 90).*
4. *That the Ontario Energy Board be authorized to receive and review in public rate hearings or such other time as is appropriate any proposed direct purchase arrangements concerning natural gas to be delivered for use in Ontario, with the objective of approving such arrangements if, in the opinion of the Board, they were in the public interest and adequately protect the interests of other parties in Ontario (p. 90).*
5. *That the proposal by Nitrochem and Cyanamid for a common feedstock rate be rejected by the Government (p. 127).*
6. *That if it is deemed appropriate by the Government to assist ammonia producers in Ontario a direct subsidy be considered by the Government in preference to the indirect subsidy by means of a common feedstock rate (p. 127).*

INTRODUCTION

The Reference to the Board

Section 36 of the Ontario Energy Board Act provides that the Lieutenant Governor in Council may require the Board to examine and report on any question respecting energy that, in the opinion of the Lieutenant Governor in Council, requires a public hearing.

By Order-in-Council O.C. 316/83, dated February 9, 1983, the Lieutenant Governor in Council made the following reference to the Board:

WHEREAS the industries in Ontario which use natural gas as a feedstock are facing an extremely competitive international market environment wherein the increasing domestic price of natural gas is a significant cost factor; and

WHEREAS certain companies have developed proposals for alternative arrangements to obtain natural gas supply other than the traditional purchase from distribution utilities; and

WHEREAS there is a possibility of undesirable effects from such alternative arrangements on the Ontario distribution utilities and their customers; and

WHEREAS an argument has been advanced that there is an undue disparity in rates charged by the Ontario distribution utilities to companies using natural gas as a feedstock and that such disparity weakens the competitive position of one or more of those companies:

THEREFORE pursuant to Section 36 of the Ontario Energy Board Act, R.S.O. 1980,

Chapter 332, the Ontario Energy Board be required to examine and, after a public hearing, report on the following:

- 1) An overview of the market environment, both domestic and foreign, within which industries which use natural gas as a feedstock and which are located in Ontario (hereinafter called the "Affected Industries") operate.
- 2) The extent to which the current and anticipated price of natural gas or any component of such price affects or is likely to affect the selling prices of the end-products of the Affected Industries and the competitiveness of the Affected Industries in the North American market.
- 3) The effects on the natural gas distribution utilities in Ontario, and on customers of those utilities, of Affected Industries making arrangements for the purchase of natural gas differing from their current supply arrangements with the distribution utilities and, in particular, to examine and report on:
 - a) the effects of specific arrangements proposed by any of the Affected Industries for alternative natural gas supplies;
 - b) whether such arrangements and their effects would be in the public interest;
 - c) if such arrangements are in the public interest, upon what terms and conditions, if any, or under what regulatory or legislative provisions, if any, they should be implemented;
 - d) if such arrangements are not in the public interest, what terms or conditions, if any, which when attached to the arrangements, would make them in the public interest;

- e) whether such arrangements could possibly set a precedent allowing other industrial customers, using natural gas for purposes other than feedstocks, to follow suit and, what the implications of such actions by other industrial customers would be.
- 4) The nature, extent and causes of any disparity in prices and rates among the Ontario distribution utilities for natural gas provided to Affected Industries and on the desirability of introducing a common rate across Ontario for natural gas used as a feedstock. This should include examination and report on the following:
- a) the validity of distinguishing Affected Industries from other industrial users of natural gas;
 - b) the implications for the various Affected Industries of a common feedstock rate;
 - c) the implications for the distribution utilities and their customers of a common feedstock rate;
 - d) whether a common feedstock rate would be in the public interest;
 - e) the method or methods by which a common feedstock rate should be implemented, having regard to the public interest.

The Hearing

The Order-in-Council was forwarded to the Board by the Minister of Energy on February 14, 1983. The Board decided to invite written submissions from interested

parties and then proceed to a hearing. In early March 1983 the Board prepared a notice to natural gas feedstock users inviting submissions on the Order-in-Council. The notice was published both in the Globe and Mail and the Financial Post, newspapers having general circulation in business communities throughout Canada. The notice was also sent by registered mail to those Ontario feedstock users known to the Board and to various associations of natural gas users. Parties advised directly in this manner were:

The Canadian Chemical Producers Association
Canadian Fertilizer Institute
Fertilizer Institute of Ontario
Industrial Gas Users' Association
C-I-L Inc.
Cyanamid Canada Inc.
Nitrochem Inc.
Allied Chemical Canada, Ltd.
Celanese Canada Inc.

The Board requested that these preliminary submissions be filed with it by April 22, 1983.

Subsequently, on May 4, 1983, a further notice to natural gas users in general was issued and published in Ontario's daily newspapers. This second notice provided for submissions from interested parties to be filed with the Board by May 31, 1983, with supporting evidence to be filed by June 30th. Reply evidence was directed to be filed by July 11th.

A list of major issues relating to the Order-in-Council (Appendix A) was prepared by Board Counsel with staff assistance on June 1, 1983. This list was forwarded to participants as they became known, together with the Board's procedural Order and list of participants. Board Counsel emphasized that the identified issues were guidelines only and that the participants were free to submit whatever evidence was thought to be appropriate for this hearing. These submissions together with the hearing form the basis for the Board's inquiry.

By the opening of the hearing on July 18, 1983, twenty-one submissions had been received by the Board. Later in the hearing, Consumers Fight Back became a participant. A brief description of the participants and the names of counsel and of persons who testified on their behalf is set out in Appendix B. Not all of the participants took an active part throughout the hearing. A glossary of terms used in this report is set out in Appendix C.

The hearing, with some interruptions, continued for 24 days. Some 34 witnesses were examined during this period. The Board requested final written submissions from the participants at the conclusion of the hearing on September 20, 1983. These were filed by October 7. The Board also allowed reply argument to these submissions. The replies were filed by October 21, 1983.

In reaching conclusions and making recommendations the Board is normally bound by the provisions of the Ontario Energy Board Act. The present report is an exception. The Board decided to consider the questions in this reference on their merits without regard to regulatory precedents. The Board wished to be free to recommend, if it so concluded, that the Ontario Energy Board Act should be amended. Consequently, the Board has proceeded on the assumption that the current regulatory provisions contained in the Ontario Energy Board Act are not binding on the Board for purposes of this report. The various proposals were considered on the basis of need, appropriateness and workability. In the case of proposals relating to alternative supply arrangements, these have been generally considered in principle only, because final and complete details were often not available.

OVERVIEW

The Foreign And Domestic Market Environment Of Feedstock Users

The first subject directed to be examined and reported upon by the Board was the foreign and domestic market environment within which Ontario "industries which use natural gas as a feedstock" operate. The term "feedstock" was not defined in the Order-in-Council and there was no consensus amongst the interested parties as to the exact meaning of the term.

In the List of Issues, Board staff provided a general definition which stated that a feedstock is taken to mean natural gas used as a source of raw material, i.e. a chemical 'building block' and not as a source of energy. We have adopted this definition in making our recommendations.

On the basis of this broad definition, the three Ontario ammonia producers, C-I-L, Cyanamid and Nitrochem, as well as Dow, Inco and Sunoco, presented evidence and/or submissions on their particular market environment.

The Ammonia Industry

Under any conventional definition of feedstock, the three Ontario ammonia producers are feedstock users and Affected Industries as described in the Order-in-Council.

Their market environment was examined in greater depth than those in which Dow, Inco and Sunoco operate.

Expert evidence on the ammonia industry (also referred to in this report as the nitrogen industry) both foreign and domestic was given by T. A. Blue, Director of the Agricultural Chemicals consulting department in the Chemical Industries Division of SRI International (formerly Stanford Research Institute) of California. Mr. Blue, a recognized authority in this field, attended on behalf of both Cyanamid and Nitrochem. C-I-L's evidence on the market environment was led by Mr. C. Hampson, senior vice president and a director of C-I-L. Cyanamid and Nitrochem augmented their evidence through their officers and employees.

Ammonia is produced by a chemical reaction involving nitrogen from the air and hydrogen. Although technically hydrogen from any source including water can be used, natural gas is the most economic source and is used as the feedstock in all of the Ontario and Canadian nitrogen industry and 97 percent of the U.S. industry. Once a plant is designed to use natural gas as a feedstock, switching to another hydrogen source is not an economically viable option.

Ammonia is the basic building block in the production of nitrogen chemicals. The principal ammonia derivatives are urea, nitric acid, ammonium nitrate,

ammonium sulfate and ammonium phosphate. Ammonia and its derivatives are used in agriculture as a fertilizer and as a protein supplement (urea) in livestock feed, and also in the manufacture of explosives, fibre and plastic products.

World Ammonia Market Environment

Mr. Blue testified that SRI estimates that total world demand for all nitrogen products in all markets in 1982 approximated 102 million short tons of ammonia, up slightly from 1980. World ammonia producing capacity in 1982 was about 130 million short tons per year, indicating that demand is only 78 percent of capacity. The Canadian ammonia market (excluding exports) is about 2 percent of total world production and is expected to be 4 - 5 percent by 1990. Some 45 percent of Canadian usage takes place in eastern Canada.

Other major sources of ammonia production include the United States, Mexico, the Caribbean (principally Trinidad), western Europe (particularly Holland) and the U.S.S.R. There is also production in North Africa, Latin America (mostly Venezuela and Brazil), the Middle East, India and east Asia.

Unlike Canada and the United States where virtually all ammonia production is carried on by privately held companies, it is estimated that by 1990 about

66 percent of the world's total ammonia capacity will be state-owned, up from 56 percent in 1975. This trend is noteworthy because in future, factors other than free market forces involving the real cost of production and transportation may well determine both the market and the market price for ammonia and its derivatives.

As noted by several witnesses, ammonia and nitrogen products are essentially interchangeable commodities traded in a virtually tariff-free, interdependent, international marketplace and are subject to commodity-type price cycles. From 1965 to the present there have been three periods during which oversupply of the product has led to depressed prices and profit margins: from 1965 to 1970, from 1975 to 1978 and from mid-1981 to the present.

While the causes of these fluctuations or cycles are largely unpredictable, broad-based and complex, the following factors have been cited:

- the effect of monetary exchange rates;
- strength of the U.S. dollar relative to other international currencies;
- interest rates;
- weather patterns;
- decisions made by governments such as those of China, Pakistan and India not to buy nitrogen products whether for economic, political or other reasons; and

financial difficulties experienced by certain countries, Brazil being an example, which force them to be exporters rather than importers of nitrogen products.

It was Mr. Blue's evidence that for the balance of this century, the timing and specific causes of future oversupply periods will continue to be unpredictable. He stated that the current depressed state of the industry is not expected to reverse itself until late 1984 or 1985, somewhat later than he had earlier anticipated.

The U.S. Ammonia Market

The U.S. ammonia market is quite mature. Internal consumption is expected to grow at an annual rate of only 1.5 percent to 1990. The market is supplied principally by internal production. However some 16 - 21 percent of total domestic consumption is provided by imports from Canada, Mexico, Trinidad, Venezuela, the U.S.S.R. and western Europe. The slow rate of growth may have significant consequences for the Ontario industry.

The market environment in both the United States and Ontario is reflective of the world market. In the United States there is currently excess ammonia production capacity, brought about primarily by the cutback in fertilizer use caused by depressed U.S. farm prices, a near

record grain surplus which reduced planting, plentiful ammonia imports from countries whose governments subsidize the price of natural gas used for ammonia production (Mexico, Holland and the U.S.S.R.) and a general decline in industrial use.

The slack in demand added to the ever-increasing cost of natural gas has caused havoc among the ammonia producers. Some one-third of the U.S. capacity has been closed either permanently or indefinitely. Nevertheless inventories of ammonia and ammonia derivatives remain high. Ammonia producers are applying to their state and federal agencies for natural gas price relief. While most state commissions and the Federal Energy Regulatory Commission (FERC) have either deferred or rejected such applications outright, a few states have allowed special rates for feedstock use subject to special conditions. In California, for example, a feedstock rate was established but only for a limited time and for ammonia products destined for export.

The U.S. producers able to continue their operations in what has been called one of the worst years ever are those with low-cost, long-term natural gas contracts. These producers are primarily operating in the U.S. Gulf Coast area (especially Louisiana and Mississippi), and they provide the competition to the ammonia producers in Ontario.

The Ontario Ammonia Industry and Markets

Unlike the ammonia producers on the U.S. Gulf Coast, the industry in Ontario is essentially market-based, the plants being close to the market rather than to the source of natural gas.

C-I-L, the largest company in terms of ammonia production, is situated at Courtright, near Sarnia, employs some 430 workers and has a current producing capacity of 375,000 tons per year. C-I-L's capacity will be slightly more than doubled when its new ammonia plant is brought on stream in late 1985. When construction of this new plant was first approved by the company in 1981 it was scheduled for completion in 1984, but following a recent review the completion date was extended to 1985. The new plant is expected to employ an additional 80 people. C-I-L's annual consumption of gas is currently 14.47 Bcf. This will increase to 26.47 Bcf per year when the new plant is completed.

Cyanamid's plant, which is located in Niagara Falls, employs some 450 people and has a producing capacity of 245,000 tons per year. Cyanamid uses some 7.4 Bcf of gas annually.

Nitrochem's plant, situated in Maitland, is the smallest, having a capacity of 90,000 tons per year and employing some 250 persons. Nitrochem's gas usage is 3.34 Bcf annually.

While all the plants are relatively old, having been built in the early and mid-60s, and smaller than more modern plants, they do not appear to be out of line with international standards on the basis of technology, scale and energy efficiency. With the cost of gas being the major component of the manufacturing cost of ammonia, no further significant improvements in operating profits can be expected by simply upgrading the existing plants.

These three producers have the capacity to supply virtually all the ammonia requirements of eastern Canada (i.e. Ontario, Quebec and the Maritimes). However, about 30 percent of this market is inaccessible to them because United Co-operatives in Ontario take their supply of fertilizer from U.S. co-operatives to which they are tied. Consequently, about one-third of the total Ontario ammonia production must find a foreign market - logically in the states of Michigan, Indiana, Ohio, Pennsylvania and New York - in order to keep the Ontario plants operating at or near design capacity. Operation below these levels is inefficient.

The Ontario producers are therefore in direct competition with U.S. Gulf Coast producers in the markets of eastern Canada and the northeastern and north central United States. (Some 34 percent of this U.S. market is supplied by Gulf Coast producers, 20 percent by Ontario producers and

the balance by local production.) In addition, if Ontario producers wish to continue to supply eastern Canada, they must be price-competitive with the delivered cost of nitrogen products - mostly urea, from Europe and other sources outside North America. There is little competition from ammonia producers situated in western Canada.

The Ontario ammonia market, being less mature than the market in the United States, is expected to grow at a rate of about 2 to 3 percent per year for the balance of this decade. This market is subject to the same cyclical swings as in the United States and elsewhere and is currently going through a very severe downturn. The length of the downturn is unknown, although there are some signs that it has bottomed out. C-I-L, the most optimistic of the Ontario producers, is of the opinion that the decline will now be relatively short-lived and that, in the longer term, the ammonia demand will recover and expand to absorb the current oversupply. It expects recovery to begin by late 1984 or early 1985. Other witnesses have suggested that market recovery will be slower. For example Mr. Blue now forecasts gradual improvement over a period of two to four years beginning in late 1984 or 1985.

As in the United States and elsewhere, the three major ammonia producers in Ontario have suffered financially because of the decline in demand and market price and the

increase in the cost of gas. All three producers have taken steps to reduce costs and improve profitability. Nitrochem has closed its urea production facilities and is importing European urea to maintain its position in the retail market. C-I-L has also closed two small "Ammopac" ammonia units which it was operating on a contract basis for a U.S. customer. Cyanamid has obtained approval from its U.S. parent company to close its urea production as well. One ammonia producer - Becker Industries, a subsidiary of a U.S. corporation, operating in Union Gas's franchise area - closed in 1977 during the previous down cycle.

Summary

From all of the above, with respect to the ammonia industry, we conclude that:

Market

- the North American ammonia industry, including that of Ontario, is influenced by international market forces because the product is a readily interchangeable commodity;
- the obtainable market price of ammonia is driven by competition, not by costs of production;
- the product, in the form of fertilizer, trades without tariff barriers, and there is no suggestion that tariffs will be introduced;

Cyclicalilty

- the ammonia industry is typically cyclical, but the length, timing and severity of the cycles are difficult to predict;
- there is a difference of opinion as to whether the presently depressed market is short-term or long-term, but general agreement that recovery is not expected in less than two years;
- the current down cycle has been caused by many factors, with the coincident decline in agricultural and industrial use exacerbating the situation;

Gas Dependence

- natural gas is currently the only economically feasible feedstock in North America;
- natural gas forms by far the largest component of the cost of production; profitability is therefore closely related to the cost of gas;

Production

- approximately one-third of U.S. production capacity has closed either permanently or temporarily in recent years;

- Ontario ammonia production has been cut back only to a limited degree;
- all three Ontario ammonia producers are suffering financial difficulties in varying degrees.

Other Industries

Dow Chemical

Dow, while not a feedstock user of natural gas, claimed to be an "Affected Industry" on the basis of the very large volume of gas it uses at its Sarnia plant to generate electric power to convert natural salt to chlorine and caustic soda (chlor-alkali). In 1982 Dow's total gas consumption at Sarnia amounted to 17.4 Bcf at a cost of some \$96,475,000, which is a larger volume than that used by the largest of the ammonia plants (C-I-L) and equal to more than half of the total consumption by ammonia plants.

Through cross-examination of witnesses representing the ammonia industry, Dow established that its own market environment in North America was similar to theirs in that it must face stiff competition with chlor-alkali plants in the U.S. Gulf Coast as well as with those using cheaper hydro-electric power in Quebec. The latter plants are Dow's primary competition in eastern Canada.

Dow in its submission (it filed no evidence) stated that the rising cost of natural gas, which accounts for approximately 20 percent of total expenses, affects not only the chlor-alkali plant but also its entire Sarnia operation. It stated that if gas costs continue to rise, the effect will be to reduce greatly its present competitive position in domestic and export markets, especially if its rising costs are not totally matched by equivalent production cost increases in the U.S. Gulf Coast plants. It appears, however, that unlike some of the ammonia producers, Dow is not currently facing major financial difficulties - its prime concern apparently being to retain and protect its competitive position.

Inco Limited

Inco did not initially file a submission as a "feedstock user" because it did not feel that the majority of its gas was used as a feedstock and, more importantly, because it opposed and continues to oppose special natural gas rates based on end use. Subsequently it did provide evidence on the market environment affecting its activities as a primary metals producer.

Mr. Aitken of Inco defined feedstock use in the following terms: "If it [natural gas] is an integral part of the chemical reaction, I would be inclined to say that that

makes it a feedstock". He estimated that based on this definition, about 50 percent of Inco's natural gas usage would be as a feedstock, although he readily acknowledged that if the more conventional definition as used by the ammonia producers was applied, Inco's percentage of feedstock use would be closer to 5 percent.

Inco stated that in 1970, its Ontario division's total energy costs were 3 percent of total operating costs. Currently they are about 14 percent, or \$85.8 million, of which natural gas represents \$29.8 million. The annual consumption of natural gas at the Sudbury location is about 6 Bcf.

In its 1982 annual report, Inco stated that 1982 was one of the worst years on record for the mining and metals industries. It said that nickel demand had fallen for an unprecedented third consecutive year to a 1982 level nearly 30 percent below its 1979 peak. It noted that in November 1982, the cash nickel price on the London Metal Exchange was at the same level as its average realized nickel price in 1973. The situation has apparently not appreciably improved since November 1982.

Inco stated that although nickel prices had declined, unit production costs continued to rise, reflecting higher costs for labour, energy and other expenses. Inco attributed the decline in product price to

the significant changes taking place in the nickel industry in the last decade. The two major causes cited were the increasing number of producers, resulting in oversupply, and the perception that nickel was not a "specialty metal" in all cases. According to Inco, nickel is now regarded as a commodity, and its price is "now driven principally by total world demand and supply, independently of rising labour, energy and other production costs." This highly competitive international market is not expected to change very much during the balance of this decade.

Inco, like the ammonia producers, finds itself in a market environment of oversupply and economic turndown, and it is suffering heavy losses. In 1982 an operating loss of U.S. \$130 million was incurred, excluding corporate and interest expenses, mining and income taxes and foreign exchange gains or losses.

Sunoco

Sunoco operates a petroleum refinery at Sarnia, Ontario. In 1982 it decided to invest an additional \$335 million to upgrade its refinery. The upgrading project includes the installation of a hydrocracker, a vacuum unit, a sulphur plant, a hydrogen plant and related facilities. The installation of the hydrogen plant will allow the refinery, for the first time, to utilize natural gas as a

feedstock in its petroleum business. Natural gas-derived hydrogen will combine with crude oil-derived refinery streams in the hydrocracker unit to produce the lighter transportation fuels which will be in greatest demand in the foreseeable future.

Mr. Hathway of Sunoco defined feedstock use as being "where a molecule of natural gas is the basic ingredient in the chemical reaction that results in other products." On the assumption that this constitutes feedstock use, Sunoco claimed status as a feedstock user and as an Affected Industry. Sunoco's current gas consumption is 0.75 Bcf per year as a heating fuel. Its additional requirement of gas as a feedstock will range between 3 Bcf and 5 Bcf per year when the new plant is completed.

The selling prices of Sunoco's products are market responsive. Sunoco sells most of its transportation fuel in eastern Canada in competition with other oil refiners. The competition for its petrochemical products which are sold in the United States seems to emanate from the U.S. Gulf Coast.

Sunoco described its market environment as being less severely affected than the ammonia industry's, but as declining to lower depths than expected, particularly in the transportation fuels sector in eastern Canada. The petrochemical aspect of its business in eastern Canada also continues under heavy pressure from products imported from

Europe and the United States. The depressed markets in Canada have resulted in closure of several refineries of other companies in Quebec, Newfoundland and Ontario. Nevertheless Sunoco, like Dow, is not facing financial difficulties to the same extent as the ammonia producers.

Summary

We conclude that in the three industries represented by Dow, Inco and Sunoco, the market price of their products is governed by competition, not by manufacturing costs. To that extent these industries, which also use large volumes of gas, are like the ammonia industry.

For purposes of this report we find that the three ammonia producers, C-I-L, Cyanamid and Nitrochem, together with Inco and Sunoco, which also use natural gas as a feedstock, constitute the Affected Industries. Dow, while a user of substantial volumes of gas, is not an Affected Industry because the gas is not used as a feedstock.

EFFECT OF NATURAL GAS PRICES ON END PRODUCT PRICES

The second matter upon which the Board was asked to report was the effect of the price of natural gas on the selling prices of the end products and the competitiveness of the Affected Industries in the North American market.

Effect on the Selling Price

In the preceding section of this report, we found that in the current oversupply market the price of ammonia is not determined by the cost of production. The evidence also indicates that when ammonia is in short supply, low-cost producers will price at the higher level obtainable in such circumstances and will enjoy higher profits; savings resulting from lower-cost gas will not generally be passed on to the users of the end product. We conclude then that in the short term, whether the ammonia industry is in a position of over- or undersupply, the selling price of the end product is determined by what the market will bear and not by the cost of gas to the producer.

The same situation appears to prevail with respect to the primary metal industry (Inco) and the oil refining business (Sunoco). On the other hand Dow, which is not an Affected Industry, has stated that increased gas costs will result in higher prices for its end use products.

Although the market determines the price of the end products of the Affected Industries in the short term, in the longer term the cost of natural gas will influence the price. As was stated by Board Counsel in argument:

"In depressed markets, the production costs of the low-cost producers tend to establish the floor below which prices cannot fall without creating a shortfall of supply relative to demand. However, it is likely that if sufficient capacity is forced to close during a period of depressed prices, the floor price will then be more precisely defined by the costs of the marginal capacity which, if lost, would swing the balance to an undersupply position. In other words, the low-cost capacity establishes the floor when there is considerable excess capacity relative to demand but the high-cost component of the remaining capacity tends to establish the floor when markets are either in balance or close to balance (Blue, Tr. 677). This is consistent with the fact that, when markets are under-supplied, prices must be sufficiently high to attract new investment or to cause higher-cost plants to reopen."

Effect on Competition

Although the cost of gas has no immediate impact on the prices of the end-use products of the Affected Industries, it does have a major effect on their competitiveness, not only with foreign competitors but also among themselves.

The cost of natural gas is the largest single cost in the production of ammonia. In Ontario, gas cost accounts for about 70 percent of the full cost of ammonia production

and up to 90 percent of the variable cost with an average of about 82 percent. In contrast, in Mexico gas costs constitute some 56 percent of the variable cost of ammonia production and in Trinidad 58 percent. In the United States the percentage for market gas is about 83 percent, reasonably close to Ontario's average percentage. However, when old-contract, low-cost, U.S. gas is used in the comparison, the cost of gas comprises only 49 percent of total variable costs, a very significant difference when compared to Ontario's approximately 82 percent average.

These numbers show that the costs of production are relevant to profitability and ultimately to the ability of an individual producer to continue operating in a marketplace where the market price is globally determined.

In North America, the U.S. Gulf Coast tends to be the reference point for ammonia pricing, not only because it accounts for a substantial share of total U.S. ammonia capacity (some 34 percent) but also because it is the major entry point for offshore imports and it is the area where the old-contract gas producers operate.

Ontario ammonia producers (as well as Inco, Sunoco and Dow) have been faced with dramatic increases in the cost of gas since 1979. Cyanamid has stated that its cost of gas has increased by 100 percent; Nitrochem's estimate is a 91 percent increase, of which 71 percent was alleged to be

tax-related. Similar increases have been experienced by C-I-L. Based on May 1983 rates, C-I-L calculated that its average unit cost for gas in 1983 would be between \$0.15915 and \$0.15858 per cubic metre ($/m^3$) (averaging about (\$4.49 per thousand cubic feet ($/Mcf$)) depending on the load factor; Cyanamid estimated \$0.1562/ m^3 (\$4.42/ Mcf), and Nitrochem \$0.15144/ m^3 (\$4.29/ Mcf).

These costs are higher than those paid by Alberta and U.S. ammonia producers. From 1979 to 1983, the average cost to Ontario ammonia producers has exceeded the overall U.S. average cost as calculated by SRI. In 1983, as compared to the overall U.S. average cost, Ontario's disadvantage was some \$1.18/million Btu (\$1.18/ Mcf)*. If the comparison is with the average U.S. Gulf Coast cost, the disadvantage is \$1.74/million Btu (\$1.74/ Mcf). This price advantage to U.S. ammonia producers is not totally offset by transportation charges, and as earlier stated there are no tariff barriers for fertilizer use. The old, low-cost gas contracts supply 50 to 56 percent of Gulf Coast ammonia-producing capacity. By 1986 the percentage is

* For purposes of this report the Board has assumed that 1 Mcf contains 1 million Btu.

expected to drop to 30 percent and by 1990 to 3 percent. However, many of these contracts are now being renegotiated prior to expiration, so that while the cost of gas may increase now, in the longer term it will remain at a lower level than market gas.

Ammonia producers outside Canada and the United States are subsidized to varying degrees. The cost of gas to ammonia producers in Mexico fluctuates, but according to Mr. Blue it is rarely above U.S. \$0.50/million Btu (\$0.50/Mcf). In Trinidad, Venezuela and Indonesia, gas is available to ammonia producers at less than U.S. \$1.00/million Btu (\$1.00/Mcf). The major producers of ammonia in Western Europe also enjoy some type of feedstock-use subsidy in the price of gas.

It is clear that the current gas costs of Ontario ammonia producers are in some cases much higher than those of their competitors.

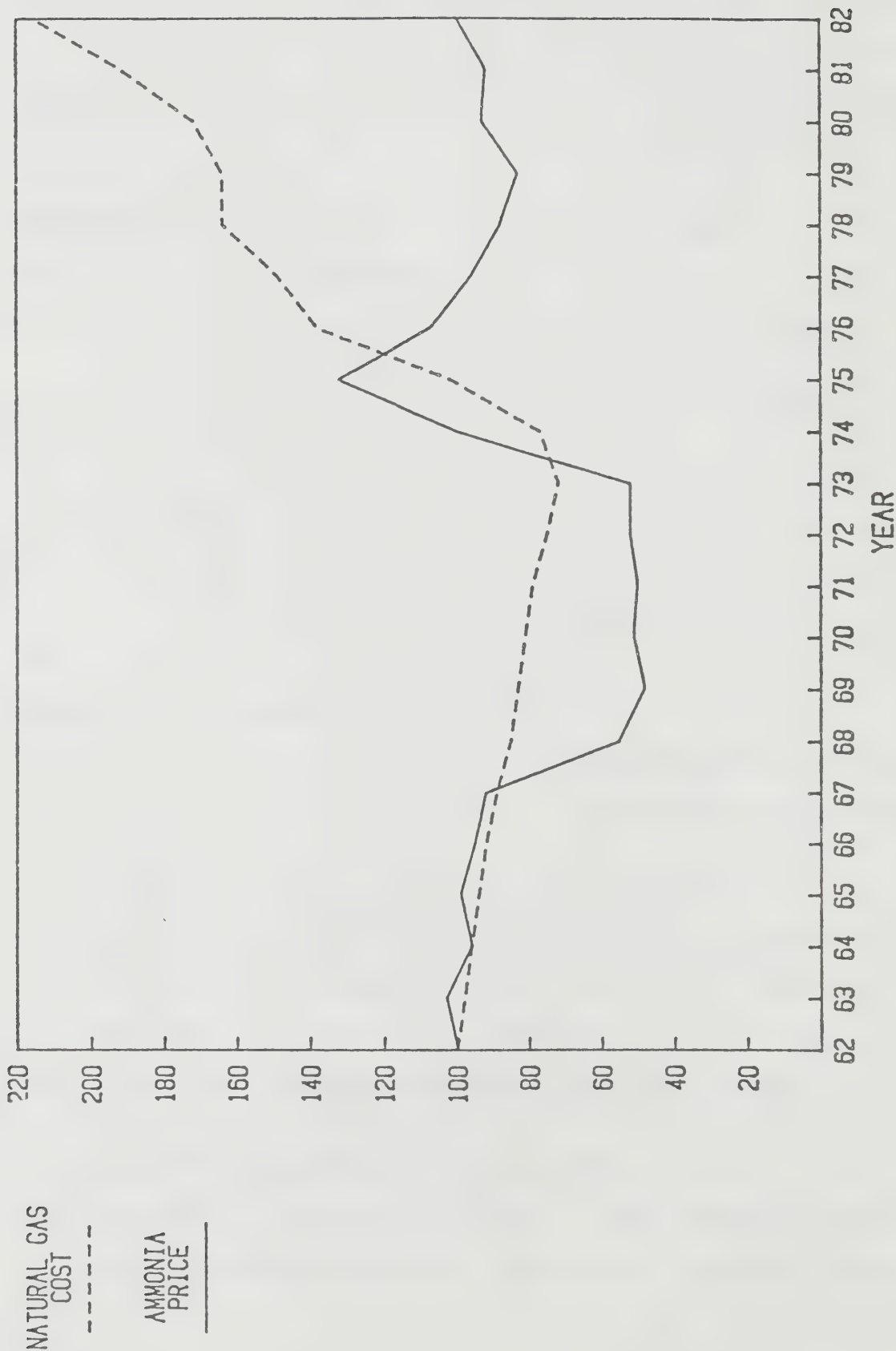
While gas costs to Ontario ammonia producers have increased dramatically, essentially due to Federal/Alberta government action, the price of ammonia has not kept pace (Figure 1). It is therefore not surprising that the profitability of Ontario ammonia producers has deteriorated.

C-I-L stated that it is making a small but unsatisfactory profit from its operations. Because of its more optimistic outlook on future gas costs and ammonia

Figure 1

AMMONIA PRICE VS GAS COST

1962 = 100 (CONSTANT DOLLARS)



prices, it is, as earlier noted, proceeding with construction of its new plant. Cyanamid sees its losses continuing into the future and has concluded that plant closure is indicated unless relief from high gas costs is granted immediately. Nitrochem is also suffering losses, but there may be other contributing factors. Nitrochem has no plans at present for further cutbacks or closures.

In summary, with the current cost of gas, Ontario ammonia producers are at a definite competitive disadvantage in comparison with other North American producers. Future profitability will be dependent on ammonia prices, which as indicated earlier are not expected to recover for two to four years, and relative natural gas prices.

It is difficult to anticipate future gas prices either in the United States or Canada. We agree that the following factors, which Board counsel categorized in argument as "inter-related and largely unpredictable", will affect future U.S. gas prices to U.S. ammonia producers:

- the timing and final form of legislation regarding price deregulation under the U.S. Natural Gas Policy Act;
- the decline, over the next several years, in the percentage of U.S. ammonia capacity supplied under old, low-cost gas contracts;

- the increasing role of market forces in setting gas prices, irrespective of legislated levels and existing contracts - for example, direct buyer/seller negotiations and efforts by transmission companies to acquire low-cost gas for industrial customers;
- the outcome of various attempts by ammonia producers to obtain natural gas price relief;
- the extent to which the United States is currently experiencing the effects of a natural gas deliverability surplus which will disappear in the short to medium term.

On the Gulf Coast Louisiana is a major, influential, reference point for natural gas pricing. SRI's projected Louisiana market price (i.e. the going price, as distinct from any other price) for the years 1982 through 1986 shows a high in 1982 of U.S. \$3.60/million Btu (\$3.60/Mcf), declining to U.S. \$3.25 and U.S. \$3.15 in 1983 and 1984 respectively, thereafter rising to U.S. \$3.35 in 1985 and 1986.

Mr. Spratt, speaking for Inco, said that the price of natural gas regulated under the U.S. Natural Gas Policy Act would decline from current levels through to 1986 as decontrol took place, but thereafter he expected the price to increase in real terms. He also saw the U.S. average price of gas increasing by 1990 in real terms by approximately \$1/Mcf from current levels.

In Ontario, future gas prices will be determined by government agreements and taxation policies. Central to any forecast of natural gas price is the relationship of the price of Canadian crude oil to world market crude oil, and the relationship of the price of natural gas to the price of Canadian crude oil. The forecast of the 1985 unit gas costs in Ontario, depending on the assumptions made, ranged from about Cdn. \$4.64/Mcf as submitted by Cyanamid to Cdn. \$4.63 as estimated by Sunoco and Cdn. \$4.66 as estimated by C-I-L.

Cyanamid, on the assumption that the 75 percent world oil and 65 percent gas-to-oil relationships would continue through 1986, calculated that the Ontario gas cost disadvantage will continue throughout this period relative to the U.S. Gulf Coast average. The advantage with respect to Louisiana market gas, as opposed to old, low-cost contract gas, which existed from 1979 through 1982, will be reversed and will become a disadvantage of between a high of U.S. \$0.29 in 1983 and a low of U.S. \$0.09 in 1985. According to Cyanamid's forecasts, in all other cost comparisons with either U.S. or Alberta prices, Ontario remains at a disadvantage throughout this period.

On the other hand C-I-L stated that "provided government policies are sensible, there is every reason to believe that gas costs in Canada will be competitive with our competitors in the United States". Looking ahead to

1985-86, C-I-L expected that prices for gas in the United States would be higher than those suggested by SRI and that Ontario ammonia producers would enjoy a price advantage in the order of Cdn. \$0.50 to \$1.00/Mcf in relation to the Louisiana market price. This forecast advantage was lower than initially projected by C-I-L when it first decided to construct its new plant. Further, by July 1983, because of currently lower than expected U.S. gas prices, the advantage projected by C-I-L for 1985 had been further reduced to a range of a Cdn. \$0.09/Mcf disadvantage to a Cdn. \$0.46/Mcf advantage. C-I-L maintained, however, that in the long run the Cdn. \$0.50 to \$1.00/Mcf advantage would prevail.

From the above we conclude that in the near term, at least to 1986, the Ontario ammonia producers will be at a cost disadvantage in relation to the major component of production costs of their product. With this disadvantage, coupled with depressed ammonia prices, the Ontario producers cannot maintain their competitive position in their traditional markets. While the impact of the disparity in gas costs is not as severe for Dow, Inco and Sunoco, their profitability and therefore competitiveness is also negatively affected.

Summary

We draw the following conclusions:

Effect of Gas Prices on End Product Prices and Profitability of the Affected Industries

- in the near term the price of natural gas does not affect the selling price of the end product;
- in the long term the price of gas does influence the selling price of the end product;
- the price of gas does affect profitability and consequently the competitiveness of the Affected Industries;

Gas Prices and Competition

- the Affected Industries have suffered dramatic increases in the cost of gas since 1979;
- the cost of gas to Ontario ammonia producers is higher than the cost of gas to their competitors offshore, in the United States and in Alberta;
- the gas cost disadvantage to Ontario ammonia producers is not totally offset by product transportation cost advantages;
- the gas cost disadvantage is expected to continue through 1986;

- the future cost of gas in Ontario and in the United States is very difficult to predict, being dependent on government policies as well as market conditions;

Financial Hardship

- Ontario ammonia producers are suffering financial hardship, but not all to the same degree;
- Ontario ammonia producers and some other large-volume users of natural gas will continue to suffer financial hardship so long as the price of gas remains inflexible relative to obtainable prices for the user's end-products.

ALTERNATIVE SUPPLY ARRANGEMENTS

The third subject upon which the Board was directed to report concerned the effect on the Ontario gas distribution utilities and their customers of arrangements made by the Affected Industries for the purchase of natural gas differing from their current supply arrangements.

Introduction

Under current supply arrangements, any consumer of natural gas in Ontario, whether an Affected Industry or not, must contract with a franchised distributor for the supply of gas. The three major Ontario gas distribution utilities (referred to herein as "utilities" or "distributors") are Union Gas Limited ("Union"), Northern and Central Gas Corporation Limited ("Northern") and The Consumers' Gas Company Ltd. ("Consumers"). These companies hold natural gas distribution franchises approved by this Board under the Municipal Franchises Act to serve various areas of Ontario. This Board also regulates their activities as utilities, including the approval of rates for gas sold to customers, under the Ontario Energy Board Act.

Each of the three major ammonia producers using natural gas as a feedstock is supplied by one of the above utilities: Cyanamid is supplied by Consumers', C-I-L by

Union and Nitrochem by Northern. Other large-volume gas users referred to in this section are supplied as follows: Dow and Suncor by Union, Inco by Northern.

All the above utilities contract for gas supply with TransCanada PipeLines Limited (TCPL) at prices which recoup TCPL's gas cost and the cost of transmitting the gas from Alberta to Ontario, including a reasonable rate of return. TCPL makes profits only on its transmission service. The transmission rates charged by TCPL are regulated by the National Energy Board (NEB). Gas purchased by TCPL from Alberta producers for movement to Ontario leaves Alberta at the Alberta Border Price (ABP) which is set by negotiation between the Alberta and Federal Governments. All volumes of gas leaving Alberta are subject to a removal permit approved by the Alberta Government after initial application to, and approval by, the Alberta Energy Resources Conservation Board (AERCB).

The prices at which the Ontario utilities sell their gas to the above-named Ontario industries are not necessarily the same. Factors having a bearing upon the utilities' selling prices to the users include TCPL's rates which vary by zone, the specific characteristics of the gas supply required and the supplying utility's particular cost basis and rate structure.

Many participants viewed direct purchases as a justifiable reaction against the inflexibility of the ABP in that, while this price has increased, the value of the gas to some Ontario industrial users has not kept pace. The price of gas has been tied, on a heat-equivalent basis, to 65 percent of the price of crude oil in Toronto. However the value of gas to some Ontario industries (e.g. ammonia) is related to the obtainable price for the products of a manufacturing process in which gas is an essential ingredient by virtue of its chemistry rather than its heat content. In such processes, it would appear that price and value to the user are not necessarily related.

Alternative Arrangements: Terminology

The differing arrangements which are the subject of Section 3 of the Order-in-Council were variously referred to during the hearing as: "direct accessing", "direct purchases", "backward (or vertical) integration" and "the integration alternative", among others. The term "direct purchase" is used hereafter because it was the term most commonly used during the hearing.

While various direct purchase schemes were discussed at the hearing, in its most simplistic form the common thread involved the Ontario-based industrial gas user arranging for the acquisition of natural gas in Alberta and

having TCPL transport it to Ontario for delivery to the Ontario gas distributor serving that particular industrial customer, for subsequent delivery to the customer's point of use.

Effects of Direct Purchases

Views of the Participants

Of the 22 participants in the hearing, 13 supported direct purchase (albeit with qualifications in some cases), four were against it (again with qualifications by some) and five did not state a position.

Supporters of Direct Purchases

a) C-I-L Inc. (an Affected Industry)

C-I-L has been involved in exploration in Alberta since 1976 and would like to integrate its Ontario ammonia production with Alberta gas reserves in which it holds, or would hold, an equity interest. The objective is to reinforce the long-term competitiveness of C-I-L's ammonia business with returns from its production of gas. C-I-L stated that it had planned such an integration for some time but by the summer of 1982 had concluded that the necessary co-operation of TCPL and Union would not be forthcoming without the support of the plan by the Government of Ontario.

C-I-L's proposed specific arrangement is as follows:

- i) The company could obtain access to gas reserves held in a joint venture with Bralorne, an Alberta resource company.
- ii) The company would apply to the AERCB for permission to remove the gas from Alberta, using an existing permit already granted to Consolidated Natural Gas Ltd. (CNG).
- iii) C-I-L would contract with TCPL for transportation service either by negotiation with TCPL or by order of the NEB under Section 59(2) of the NEB Act.
- iv) C-I-L would sell the gas to Union in Ontario at Union's interconnection with TCPL and repurchase it delivered to C-I-L's Courtright plant at a negotiated price including a reasonable mark-up for Union without increasing the distribution business risks for the utility.

According to C-I-L, without direct purchase there is no mechanism that would enable an Ontario ammonia producer to have long-term control of the most expensive component in its overall cost of production, namely, the cost of gas. Direct purchase is seen as a long-term commitment enabling an industrial consumer to acquire

natural gas at costs "which effectively will reflect market conditions". Moreover, it submitted that the arrangement could be structured without increasing current business risks for TCPL and the Ontario distributors.

In the view of C-I-L, if all the parties involved agree, direct purchase arrangements would not require changes to Ontario legislation; however, an amendment would be required to the Ontario Energy Board Act if it became necessary to compel a purchase of gas by an Ontario distributor from an Ontario industrial consumer, or its transportation. C-I-L also contended that the NEB can order TCPL to transport the direct purchaser's gas from Alberta to Ontario if TCPL refused to do so. As well, the company believes that the NEB has the power to reallocate demand charges as "credits" to the specific Ontario distributor's obligations to TCPL. Further, C-I-L believes that payments made to TCPL for gas transmission (T-service) by the industrial customer can be "credited" toward the Ontario distributor's obligations to TCPL where a contract between these parties has effectively been varied by the direct purchase.

As evidence that the current natural gas marketing system has not worked well, C-I-L pointed to "the tremendous costs of oversupply" in that Alberta producers who sell to TCPL are, through the TOPGAS agreement, bearing the carrying

costs on some \$2.3 billion in take-or-pay payments. A further \$0.4 billion additional take-or-pay payments was expected in 1983. C-I-L also referred to the present excess capacity on the TCPL system, the cost of which is being borne by gas consumers east of Alberta. According to C-I-L this cost burden has been exacerbated by the traditional marketing and regulatory structure, since it provided no real incentive for local distributors or TCPL to be efficient in estimating demand or in constructing facilities.

The company believes that direct purchases can go hand-in-hand with price incentive schemes and in the long term will stimulate market responsiveness in the administered natural gas price. C-I-L referred to similar arrangements being available to industry in Alberta and the United States and the expectation that they would also be available in British Columbia.

C-I-L was critical of the opposition to direct purchases displayed during the hearing by what it termed the "vested interests" (in which it included the Ontario gas distributors, TCPL, and some of the producer interests). C-I-L contended that the benefits of direct purchases, which would preserve and strengthen the competitiveness of industries in Ontario, would far outweigh potential undesirable effects.

C-I-L stated that positive action by the Ontario Government to preserve and strengthen Ontario industries would encourage a favourable reaction from Alberta to specific direct purchase proposals. In this context, the company argued that the Ontario Government should remit to the Ontario gas utilities federal income taxes transferred to Ontario under the federal Public Utilities Income Tax Transfer Act (P.U.I.T.T.A.), "to reduce the costs of natural gas for Ontario industry as the OEB may direct".

b) Nitrochem Inc. (an Affected Industry)

The company stated that it had attempted to acquire a natural gas supply of its own in the 1970s but, although Northern was prepared to receive the gas at the Alberta border, the proposal died because of TCPL's resistance to it. Nitrochem again explored the possibility of direct purchasing near the end of its 20-year contract with Northern (ending October 31, 1981). When the contract was extended to October 31, 1982, Northern agreed to renegotiate the contract if Nitrochem obtained all regulatory approvals to acquire gas in Alberta and move it to its plant at Maitland. A further extension to October 31, 1984, provided for Nitrochem to give nine months' notice to Northern to terminate its contract if

Nitrochem obtained such approvals. A draft agreement was sent to Northern in February 1983 but the matter was left in abeyance.

Nitrochem is contemplating a joint venture with Roxy Petroleum Ltd., a subsidiary of the Hudson's Bay Co. Ltd., in which Roxy would hold 20 percent of the equity and Nitrochem 80 percent. The joint venture would purchase some 40 Bcf of gas reserves in Alberta, either from Roxy or elsewhere. This volume would meet Nitrochem's anticipated needs for approximately eight years.

Nitrochem's specific proposal is as follows:

- i) Following conclusion of the joint venture agreement as outlined above for the acquisition of gas reserves, the joint venture would also arrange:
 - for authorization to remove the gas from Alberta
 - for transportation of gas within Alberta to TCPL's line
 - for back-up supplies to cover unforeseen contingencies
 - for transmission by TCPL to Ontario
 - for the sale of the gas to Northern at its interconnection with TCPL and the repurchase of the gas from Northern at Maitland on the

basis of Northern's allocated cost of service plus the allowed rate of return; alternatively, either to enter into a transportation agreement with Northern or to construct its own pipeline from the TCPL interconnection to Maitland.

Nitrochem disputed Board Counsel's and others' suggestion that demand charges payable by Ontario distributors to TCPL be transferred from the distributors to the direct purchasers for the life of the distributors' contracts with TCPL; in the case of Northern, this would be until 1995. In Nitrochem's view, a distributor can only look to a customer to cover the distributor's demand charges for the life of the customer's contracts - in Nitrochem's contract, nine months. If TCPL is unwilling to transfer the obligation voluntarily, Nitrochem suggested that this might be done by order of the NEB. Nitrochem also proposed that all component contracts covering a direct purchase arrangement be made for the same period - possibly five years, or longer. In Nitrochem's view, Northern would then have less risk of unabsorbed demand charges than at present with the longer contracted period, and to that extent Northern's position would improve.

As discussed more fully later in this report, TCPL objected to all direct purchase arrangements on the ground

that such arrangements would worsen its take-or-pay problems. Nitrochem countered that the scale of TCPL's problem (TCPL is taking only 47 percent of its obligation to purchase i.e. less than the 60 percent obligation established under TOPGAS) is such that direct purchases are unlikely to have a significant impact.

In Nitrochem's view, direct purchases should be available to all gas users and not be limited to users of incremental volumes, i.e. volume requirements that would not occur but for direct purchases. Furthermore, Nitrochem like C-I-L believes that direct purchases can coexist with incentive pricing, if such a program were developed.

Nitrochem believes that direct purchases would bring a measure of relief from artificially high and uncompetitive gas prices, enabling the nitrogen industry in Ontario to survive. Direct purchases would result, according to Nitrochem, in more competition in the purchase of gas in Alberta and would exert pressure for more market-responsive pricing of all natural gas.

c) Cyanamid Canada Inc. (an Affected Industry)

While Cyanamid believes that a common feedstock rate would be the prime solution to its problems, the company also believes that direct purchases can, in the long run, provide the means by which feedstock users can control

their own gas costs. The company argues that direct purchases would allow the feedstock users to remain competitive and ensure continued gas sales to the Ontario nitrogen industry. This could be accomplished, says Cyanamid, without adverse effects on distributors or their customers provided that "unabsorbed demand charges, if any, suffered by the utilities as a result of direct purchase, are transferred to the feedstock users and not collected twice by TransCanada".

The company believes that any effects on TCPL's take-or-pay payments will be minimal and short-lived because the current gas oversupply will shortly be taken up by increased exports to the United States; that TCPL will have no greater risk dealing with direct purchasers than with the distributors; and that any increase in TCPL's take-or-pay payments will not be borne by TCPL's customers "since they [the payments] are placed in the Alberta cost of service".

Cyanamid sees the concern expressed by the Ontario distributors about direct purchases as "a desire to maintain the status quo to protect their monopoly". Cyanamid also believes that direct purchasers would have no problem in arranging back-up supplies.

Cyanamid made no specific direct purchase proposal but stated that it has discussed direct purchase with a number of Alberta producers. The company believes that it

can enter into a contract to acquire gas in Alberta without exploring for it or purchasing reserves. In fact, it would expect to receive a payment or discount from the producer in consideration of providing a new, firm market and to obtain transportation service from Consumers' to its Niagara Falls plant at reasonable cost.

d) Sunoco (an Affected Industry)

For the sake of simplicity, the name Sunoco is used in this section regardless of any inter-functional relationship between Sunoco and its parent Suncor. Sunoco is accepted as an Affected Industry for the purposes of this report, but it differs fundamentally from other feedstock users in Ontario because the gas would be used in the new extension to its Sarnia refinery for the manufacture of light transportation fuels.

Sunoco believes that it is imperative that the Ontario utilities are kept "whole" in any direct purchase arrangements.

Sunoco's specific proposal is as follows:

- to arrange for the gathering of its own gas and transportation within Alberta
- to obtain the appropriate removal permit from the Alberta Government

- to arrange for T-service by TCPL to the appropriate Union delivery point in Ontario and transportation service by Union to the Sarnia refinery paying the same price as it would otherwise pay to Union. Sunoco prefers to retain title to the gas throughout but would leave this and other matters to negotiation between the parties. Sunoco proposed that the contract then be submitted to the Ontario Energy Board for approval, either in a rate hearing or some other proceeding.

The company argued that, while direct purchase should be open to anybody, the number of qualifying parties will be limited because only a handful of high-volume, high-load-factor gas customers who have the means to invest, or who have invested, in petroleum exploration will be interested. There would be no opening of "floodgates" as feared by some of the opponents to direct purchase.

Sunoco, which is a signatory to the TOPGAS agreement, now produces gas in Alberta and sells it to TCPL. In considering direct sales to affiliates, Sunoco said that access should be limited to producers who are respecting their existing contracts. Suncor has no intention of abrogating its present sales contracts with TransCanada and does not believe that any scheme involving the repudiation of producer contracts should be condoned by the Board. The company believes that the volumes of gas

that it proposes to purchase directly for its Sarnia refinery would be in addition to volumes already included in Union's forecast, and not in place of them.

The company favours an arrangement with TCPL and Union covering transportation service only. Sunoco does not believe that the question of demand charges constitutes an obstacle to direct purchases. It asserted that the major impediment to direct purchases lies in TCPL's take-or-pay situation, the impact of which is seen by Sunoco to be more disadvantageous to Alberta producers than to TCPL. In Sunoco's view, the fact that TCPL contracted to buy gas for exports that have not yet materialized is not grounds for penalizing Canadian industrial customers wishing to obtain access to their own gas.

The company believes that the NEB provides the proper forum for addressing concerns as to whether the TCPL system is threatened by direct purchases. Similarly, Sunoco holds the view that the appropriate forum where producer concerns can be addressed is in the Alberta government agencies.

e) Inco Limited (an Affected Industry)

Inco is a substantial consumer of natural gas, which accounts for a significant part of its costs.

The company, through a subsidiary, commenced an exploration program in Alberta in 1979 and by the end of 1982 had developed substantial gas reserves. It is a supporter of direct purchases, and its stated preference is for the utilities to purchase the gas at the Alberta border and to arrange for contract transmission service with TCPL and delivery to the user at the latter's plant under the utilities' normal rate structures.

In addition to the above Affected Industries, the following Ontario industry supported direct purchases.

f) Dow Chemical Canada Inc.

While not a feedstock user in the accepted sense, Dow claims to be a captive large-volume user of gas, the price of which is critical in its ability to compete in its chlor-alkali markets. The company supported direct purchasing provided no additional costs were placed on other parties. It made no specific proposals but stated in its submission that the regulatory process should provide a framework for mutually beneficial commercial arrangements.

The following participants also supported direct purchases, some with conditions.

g) Consolidated Natural Gas Limited

The company advocates direct purchase as one measure which could be taken by industry "to insulate itself from future price increases or at least uncertainty". It submitted that direct purchasers should be able to acquire their own gas supplies by independent or joint venture exploration for new gas reserves or by buying-in to existing reserves, and that the facilities of TCPL and the gas distributors in Ontario should be available to transport gas purchased by Ontario industry. If necessary, the NEB could require TCPL to provide transportation under Section 59(2) of the NEB Act.

h) Independent Petroleum Association of Canada

IPAC supported the concept of direct purchase only for markets where additional gas sales were involved as "a step toward resolving current problems". However, the Association was not a supporter of direct purchasing for existing markets and was concerned that, as a solution, the arrangement "circumvents the true problem rather than addressing it head on". The true problem according to IPAC is the price of natural gas at the delivery point.

- i) The Director of Investigation and Research
Bureau of Competition Policy
Consumer and Corporate Affairs (Canada)

The Department supported the concept of direct purchase "because of the positive effects on competition in Ontario and Alberta". It noted that discounts are allowed on gas consumed in Alberta, where direct purchases are also permitted; these factors, it said, place Ontario industry at a disadvantage. It also pointed to the following anti-competitive features in the TOPGAS agreements:

- ° TCPL cannot contract for new gas supplies until all prepaid gas is recovered. This effectively keeps out new suppliers of gas, and reserves the Ontario market and its growth to TCPL's currently contracted producers until at least the end of this decade.
- ° While Alberta producers can sell volumes of gas in excess of TCPL's daily nominations to third parties, such volumes cannot be sold for use in any TCPL market. Sales of such gas to Ontario are therefore precluded.
- ° Transfer of the demand charge in existing CD contracts between TCPL and the Ontario utilities to the direct purchaser wishing to contract with TCPL for I-service would require amendment of TCPL's contract with TOPGAS. TCPL is unwilling to take any steps which

would reduce its sales volumes because it is committed to a "best efforts" obligation to TOPGAS "to retain and expand its existing markets".

The Department stated that it believes there is a conflict of interest between TCPL's business as a buyer and seller of gas and its transportation service. It sees the effect of direct purchase arrangements as diluting both TCPL's monopsony in buying gas for Ontario and its monopoly in selling such gas to Ontario markets.

j) Universal Explorations Ltd.

This company believes that direct purchases would provide a hedge against escalating gas prices which are seen to be likely in three to four years when the decline in U.S. gas reserves will become apparent. It said that direct purchases would enable the producer to develop its Alberta properties and permit it to offer incentives to an Ontario consumer. Further, in exchange for a steady market including where appropriate a guarantee not to switch to an alternative fuel, an Alberta producer could offer an interest in a producing property to an industrial customer which could be paid off gradually from the proceeds of gas sales.

The company believes that direct purchases could lead eventually to a higher demand for gas, thereby taking

up existing spare capacity in transmission and distributor systems and resulting ultimately in lower costs.

k) Industrial Gas Users Association

IGUA supported the proposition that any industrial user of natural gas in Ontario should be free to make its own procurement arrangements for natural gas directly with the gas producers and that the Ontario distributors should deliver it.

l) Union Gas Limited

Alone of the three major Ontario gas utilities, Union accepted "the principle of a direct purchase scheme as a first evolutionary step toward more direct producer-consumer marketing of gas in Ontario". Its acceptance is conditional upon its not accepting title to the gas outside Ontario and not becoming a contract carrier on its own system. Furthermore, direct purchase arrangements must not have any adverse effect on the utilities or their customers. Since Union is currently in an oversupply position, any direct purchase entered into before Union needs to contract for additional gas supplies (around 1988) would require the direct purchaser to assume the utility's demand charge obligations to TCPL.

Union proposed that the negotiated arrangement between it and a direct purchaser be presented to the Board for approval during a full rate hearing, prior to the conclusion of formal contracts.

m) Board Counsel

Counsel believes that certain advantages would accrue to Ontario industries able to make favourable direct purchase arrangements. In his opinion, there appeared to be no overwhelming reason to prevent the user from making such arrangements provided it is prepared to accept the rates involved and to keep the utility and its customers "whole".

Non-Supporters of Direct Purchases

a) TransCanada PipeLines Limited

TCPL's participation in the hearing related solely to direct purchases.

Because of its supply/demand imbalance, TCPL had incurred a cumulative take-or-pay obligation to the producers in Alberta amounting, as at the end of 1982, to some \$2.3 billion which the company was able to finance by means of the TOPGAS agreement. The terms of that agreement allow TCPL to reduce its take-or-pay obligation to the lesser of 60 percent of its minimum 1981/82 contract year level or 75 percent of the current year obligation level.

However, TCPL continues to incur take-or-pay deficiencies which will amount to some \$0.4 billion for 1983. TCPL is committed by contracts with Alberta gas producers to use its best efforts to maintain and expand its markets for the benefit of those producers. In order to accommodate a direct purchaser, TCPL would have to reduce its sales volumes to utilities and therefore its purchases from Alberta producers. In view of its contractual commitments to the producers, TCPL contends that it cannot voluntarily give up any part of its market. Because its contracts with the utilities must remain intact, TCPL maintains that it cannot forgo or release demand charges payable by the utilities. TCPL stated that it is not aware of any law or agency that can require it to amend its contracts against its wishes. On the other hand, it acknowledged that the NEB would probably not allow it to collect demand charges twice for the same volume, once from the utility and once from the direct purchaser.

The company referred to a letter dated August 3, 1983 (Exhibit 23.1.20 in the hearing) from the NEB in which that Board states, in respect of direct purchase volumes which would otherwise be purchased by the utilities from TCPL, that "the Board is of the opinion that the variation of the gas volumes specified in CD contracts is a matter for negotiation between the parties to those contracts." TCPL

regards this letter as evidence that the NEB will not direct TCPL to amend its sales contracts with utilities and transfer the utilities' CD obligations under those contracts to direct purchasers.

The company also referred to Section 59(2) of the NEB Act, which states:

"The Board may by order, on such terms and conditions as it may specify in the order, require a company operating a pipeline for the transmission of gas to receive, transport and deliver gas offered by a person for transmission by means of the pipeline."

Having regard to the obligation conferred upon TCPL by this section and the potential requirement implied by direct purchase arrangements, the NEB, at TCPL's request, amended its T-service tariff so that any entity can qualify for T-service if it meets all the conditions and is creditworthy. Moreover, the NEB can order TCPL to transport another entity's gas in the absence of an agreement between TCPL and the direct purchaser.

The company is opposed to direct purchases, implicitly for so long as its oversupply position lasts, i.e. at least until the end of this decade. In any event, it maintains that while the aim of direct purchases is the resolution of problems that are in fact current pricing

problems, the best method of resolving them would be the implementation of a market-oriented gas pricing mechanism.

b) Dome Petroleum Limited

Dome was a shareholder in TCPL at the time of the hearing and a major gas supplier. It opposed direct purchases on several grounds. First, it noted that Ontario industries may be required to invest large sums in producing properties, which they may ill afford. Second, direct purchases would displace volumes currently serving the Ontario market with serious consequences for TCPL's take-or-pay arrangements and the financial viability of producers contracted to TCPL. Third, if TCPL refused to relieve the utilities of demand charges applicable to volumes displaced by direct purchase arrangements, the charges would have to be recovered from the remaining customers of the utility.

Dome believed that the needs of Ontario industry could best be met by means of an appropriate pricing mechanism, and it was the only participant to make a specific proposal on gas pricing.

Under Dome's proposal discounts would be offered by Alberta primarily to interruptible gas customers and later to all industrial users. At the time of submitting their original proposal in June 1983, Dome expected that

there would be an increase in the Alberta Border Price on August 1, 1983, and on February 1, 1984. The company proposed that such increases should be in the form of fixed charges, tied to TCPL's winter daily contract obligation. Dome proposed that on August 1, 1983 Alberta should offer an incentive discount of 50¢/million Btu for "qualified" interruptible sales in excess of 90 percent of the volumes taken by each Ontario utility in the 12 months ending July 31, 1983. "Qualified sales" would be those made by the utility under a special interruptible rate priced no higher than the equivalent heavy fuel oil price. Dome's proposal also included a reduction by the utilities in rates to the Affected Industries by 50¢/million Btu and the elimination of the Natural Gas and Gas Liquids Tax and the Canadian Ownership Special Charge from rates to the Affected Industries.

In a second step to be effective February 1, 1984, Dome proposed that the Alberta discount would be increased to 75¢/million Btu for all industrial sales in excess of 75 percent of the base period volumes. The distributors would also increase their discount to the Affected Industries to 75¢/million Btu and to all industrial customers by 30¢/million Btu.

Dome's witness at the hearing suggested that both steps would likely be combined into one, presumably as a

result of the amending agreement dated June 30, 1983, between the Federal and Alberta Governments. He stated that Dome's proposal had been discussed with agencies of those governments.

c) The Consumers' Gas Company Ltd.

Consumers' opposed direct purchasing especially in the current oversupply position. In its view, the current system is working well and should not be altered. It contended that direct purchases would aggravate TCPL's take-or-pay position and suggested that if TCPL's volumes decline, its cost of raising capital may rise. Furthermore, Consumers' suggested that the present inclusion in the Alberta Cost of Service of the carrying costs on the money raised to pay for TCPL's accrued take-or-pay obligations, could conceivably be rejected by the Alberta Government. This and other financial aspects could lead to higher costs for the end consumer. Consumers' also referred to the utilities' additional costs if the problem of transferring demand charges to the direct purchaser is not resolved; in that case they too would have to be borne by all end users.

Among other problems cited by the company in opposing direct purchases were the cost of unnecessarily connecting up new gas reserves in Alberta, administrative inefficiencies, the greater security of supply inherent in

the current system and the likelihood of others wishing to participate in direct purchasing, including the three Ontario utilities themselves.

The company sees the cause of present problems faced by industrial users as the inflexibility of the Alberta Border Price.

d) Northern and Central Gas Corporation Limited

Northern believes that direct purchases would cause a significant disruption of the traditional pattern in the natural gas transmission and distribution systems by making gas supply contracting generally far more difficult for the distribution companies. Northern drew attention to the potential for increased costs of financing for both itself and TCPL. Other increased administration costs were foreseen for both companies in co-ordinating supply and demand. As well, Northern expressed concern about the security of supply to Ontario. Major concerns included the treatment of demand costs in the utilities' contracts with TCPL in the context of direct purchase contracts and the adverse effect of direct purchasing on TCPL's take-or-pay problems. While offering no solution, Northern (like some other participants) also found it difficult to see how this Board would determine the sequence of supply to the same

industrial markets, i.e. as between the utilities and the industries themselves as direct purchasers.

The company also drew attention to the indications that direct purchasers may be unwilling to contract with TCPL for the same long-term periods as the utilities, whose contracts extend generally to 1995. The demand cost burdens under existing utility contracts with TCPL would not, therefore, be completely assumed by the direct purchasers.

The company believes some form of action other than direct purchases is required to deal with industry's plight.

Participants Without a Stated Position

The following parties to the hearing took no position on direct purchases:

- a) Urban Development Institute - Apartment Group,
- b) Canterra Energy Ltd.,
- c) Petro-Canada Exploration Inc.,
- d) NOVA, an Alberta Corporation,
- e) Inter-City Gas Corporation.

Views of the Board on Direct Purchase Arrangements

A number of the companies supporting direct purchases which participated in the hearing have been active directly or indirectly in gas exploration for some time. Even those companies must develop their proposals more fully

before they can be assessed completely. In some cases, it was stated that further development awaited the outcome of this hearing. Consequently, it is not possible for all the effects of direct purchase proposals to be foreseen at this stage. Our assessment of the effects of such proposals as were presented at the hearing has necessarily been limited.

In essence, direct purchasing requires the purchaser or associate to take all the following steps:

- to acquire an interest in Alberta gas production either by investment in exploration or by purchase of existing reserves. An alternative suggested at the hearing, though somewhat vaguely, was a simple direct purchase with a producer of gas giving the purchaser a financial consideration in exchange for a guaranteed market;
- to obtain from the Alberta Government a permit for the removal of the gas from that province, or access to an existing permit that is not fully utilized;
- to contract with TCPL for transportation of the gas to Ontario;
- to contract with the appropriate Ontario utility for transmission of the gas from the point of interconnection with TCPL to the purchaser's plant. This could be effected either by sale to the utility and re-purchase of the gas with a mark-up for the utility or by transportation service provided for a suitable fee.

Gas leaving Alberta under direct purchase arrangements would be subject to the ABP. As an owner of the gas the direct purchaser would be entitled to any production profit, which would strengthen the purchaser's overall corporate financial position. This profit stream could, but would not necessarily, be set against the direct purchaser's cost of gas delivered to its plant in Ontario. The direct purchaser would, in effect, be using its own gas rather than another's. The benefits of these arrangements were estimated in the hearing at between Cdn. \$0.50 and \$1.00 per Mcf in terms of production proceeds that could theoretically be applied to reduce the gas costs of direct purchases in Ontario. It was the proponents' view that transportation and distribution costs under direct purchase arrangements would be substantially the same as under current arrangements.

Some participants saw direct purchases as a means to introduce "market responsiveness" into the existing pricing system. In an unregulated market, relatively short-term factors are reflected in current prices. However, the present structure of the gas supply industry is not conducive to the degree of flexibility normally associated with short-term market response. The following is an outline of the major components of the present structure:

- i) The removal of gas from Alberta is subject to an application and permit process designed chiefly to identify the volumes of gas as surplus to Alberta's own requirements for the ensuing 25 years.
- ii) TCPL's contracts with Alberta producers for gas permitted to be removed are traditionally long-term (20 years) and subject to take-or-pay provisions.
- iii) Prices applicable to gas leaving Alberta have been decreed under Alberta/Federal Government agreements since 1975, and gas cannot be sold at lower prices.
- iv) TCPL's transmission tariffs are regulated by the NEB.
- v) Ontario utilities have traditionally entered into long-term (20-year) contracts with TCPL, and the utilities' rates are regulated by this Board.

All the elements of gas supply are therefore controlled to a high degree and are designed for long-term stability. Market responsiveness implies reacting to upward as well as downward pressure, and the current system can accommodate higher market demands for gas and higher market values relatively easily. However, difficulties arise in the reverse situation, now being experienced, where market

values are lower than decreed prices and current demands for gas are lower than the volumes committed to be purchased by TCPL under long-term arrangements.

We believe that the degree of market responsiveness that can be expected from direct purchases would be limited to a small measure of control over long-term gas costs made possible by the availability of funds generated from production profits. Short-term market responsiveness is therefore not likely to result from direct purchases by the Affected Industries, particularly if only they are involved. The estimated present demand of the three ammonia companies and Inco (feedstock use only) is approximately 25.5 Bcf per year. With the completion of C-I-L's and Sunoco's new plants, the Affected Industries' annual demand will become 40.5-42.5 Bcf. The current total Ontario natural gas demand is approximately 670 Bcf per year.

The continued existence of the present regulatory structure was generally recognized during the hearing, and there was no expressed expectation that its decreed and administered aspects would be altered in the foreseeable future.

Any rationalization of the market, in terms of closer links between producer and user, would effectively be a private matter. On the assumption that administered

prices and regulated charges would continue, there is little likelihood of any influence on natural gas pricing from direct purchases.

The need for a degree of short-term flexibility - particularly in the pricing of natural gas for industrial uses - remains, but we see this as a separate question from direct purchasing with its long-term objectives. Moreover, the introduction of price flexibility for industry would not necessarily be followed automatically by a diminution of interest in direct purchasing. They are not substitutes and can coexist.

Because of the lead time required to acquire access to gas resources in Alberta, to secure a gas removal permit from the Alberta Government and to develop appropriate arrangements with TCPL and the Ontario utility involved, direct purchasing - if developed - must be regarded as a long-term strategy and not as a short-term tactic for immediate relief. In other words, the investment in Alberta with the intention of acquiring one's own gas would be seen as an attractive business decision for the long term regardless of any immediate problem of gas pricing. Furthermore, the eventual return to higher overall demand levels for gas in Alberta in no way vitiates the prior investment of a direct purchaser.

The evidence suggests that a bare minimum of 18 months would be required before all the mechanisms could be in place. In practice, a much longer period may be necessary. Then, depending on the individual arrangement to acquire access to gas reserves, several additional years may be required for the investment to become profitable. In any event, the profits of production may vary, so that the theoretical effect on the user's cost of gas may also vary. Profits of production may not necessarily be employed directly to reduce the user's gas costs in Ontario to improve competitiveness. However, in our view, the additional funds would strengthen a direct purchaser corporately and would better enable it to compete in its Ontario market in the long term and thus enable it to cope with the cyclical aspects of that market.

In our opinion, it should not be assumed that direct purchases would lead automatically to increased throughput in the TCPL and Ontario utilities' systems. For that to occur the consumers of other fuels would have to be led to switch to natural gas by the appeal of direct purchases as a long-term business decision.

Large investments may be needed to acquire access to gas reserves, which may be a greater impediment to one gas user (whether an Affected Industry or not) than another.

Under direct purchase the different contractual arrangements involved would have an impact on the Affected Industries. At present the Affected Industries have relatively short contracts with their supplying gas utilities, which in turn have relatively long-term contracts with TCPL. The utilities have stated that they would require long-term contracts with the Affected Industries under direct purchase. While some extension over the current relatively short-term contracts may be justified under the changed arrangements, a jump to the 20-year contract length which is typical between the utilities and TCPL would not appear to be called for.

TCPL claims that the volumes which it is committed to buy from Alberta producers under long-term contracts reflect the Ontario gas distributors' forecast needs, including those of the Affected Industries. Since 1976, TCPL has been in an oversupply position brought about by declining demand, largely in the export market, by increased supply resulting from the rise in administered price levels since 1975 and the nature of its contractual commitments to gas producers. Under such circumstances, direct purchases by Affected Industries would force out volumes of gas which TCPL is committed to buy under current contracts with producers. In our view, the degree of impact upon TCPL's take-or-pay problems, its TOPGAS agreement and the view of

TCPL taken by the financial community is largely unknown at the present time. However, the present gas demand of the Affected Industries is a small percentage (less than 5 percent) of the total Ontario demand and a very much smaller percentage of the total demand on Alberta producers to whom TCPL is committed. Viewed against the size of TCPL's existing substantial take-or-pay problems, it is difficult to conclude that the additional effect direct purchasing by the Affected Industries might have would be very significant.

TCPL's present long-term contracts with the utilities include demand charges, which are essentially payments for TCPL capacity dedicated to the utilities' needs, whether used or not. Similar provisions would be necessary in the contracts between TCPL and the Affected Industries as direct purchasers. Since the latter would substitute for the former, we would expect that such an obligation could be, in effect, transferred. However, TCPL stated that it could not voluntarily give up any part of its market, chiefly because it is committed under its existing TOPGAS arrangements to sharing its existing markets pro-rata among its contracted gas producers. It is also committed to using its best efforts to expand the existing markets for the contracted producers' benefit. TCPL claims that its ability to negotiate any new TOPGAS arrangement to reflect

the continuing declining demand may also be impaired. Despite the position it takes, TCPL is reasonably certain that the NEB would prevent it from collecting demand charges twice, i.e. from the utility and from the Affected Industries for the same capacity. On the other hand, TCPL believes that neither the NEB nor any other authority can compel it to amend its contracts - a view not shared by all participants. As well, TCPL recognizes that under Section 59(2) of the NEB Act it can be required to provide transportation service for other entities and that an appropriate tariff exists.

We observe that based on TCPL's position direct purchases would be impossible until TCPL's massive oversupply problem is resolved; on the evidence, this would probably not occur before the end of this decade at the earliest.

If TCPL's position is upheld this would indicate, in our opinion, that TCPL could block any attempts by new Alberta producers and Ontario industries to act in their own interests, as they perceive them, for many years.

If this seems incredible, it must be borne in mind that until about 1976 TCPL had little experience with major oversupply. It would appear that, without government pressure, TCPL perceived it to be in its interest to develop a gas buying and contracting policy which would ensure that

gas supplies were sufficient to satisfy evergrowing demands. Its massive buying power and financial backing provided a measure of security to Ontario when there was a real likelihood of gas supply shortages. Moreover, TCPL makes no profits from this activity. However, in the light of the present contractual situation in which TCPL finds itself, the gas oversupply position which appears likely to continue, and the needs of other companies to make business decisions in their own interests in such circumstances, we may question what benefits stem from TCPL remaining the buyer and seller of virtually all the gas moving from Alberta to Ontario.

In our view, there is insufficient hard evidence to support TCPL's fears as to the problems likely to arise from direct purchases. We find it difficult to accept that no method can be devised for the transfer of demand charges from the utilities' contracts with TCPL to the direct purchasers' contracts with TCPL in such a way that all parties' interests can be safeguarded. One would expect such matters to be capable of negotiation. Based on the letter quoted on p. 58 we believe that the NEB holds the same view.

On the evidence before us we do not accept that TCPL's present relationship to the Alberta producers and the current TOPGAS agreement cannot be changed for years.

TCPL's CD contracts with Ontario utilities do not include take-or-pay provisions; these were removed some years ago. TCPL may consider re-introducing them into utility contracts if direct purchases become a reality. The effect would be that accurate forecasting by the utilities would assume a greater degree of importance.

The Affected Industries, by undertaking longer-term contracts with the utilities than hitherto, as well as similar length contracts with TCPL for gas transmission, would find themselves as direct purchasers assuming greater responsibility, and therefore risk, for accurate forecasting of requirements. They would become directly responsible for demand charges and, depending on their arrangement with the producer, for take-or-pay requirements.

By acquiring its own gas supply, the direct purchaser would automatically assume the risk of supply failure, previously borne by the utility. A direct purchaser would have to make its own arrangements for back-up supply since it would be irresponsible for it to plan to rely on the gas distributor and/or the distributor's other customers to support it if its gas supply was inadequate, and unreasonable for the utility to be obliged to serve in these circumstances.

The Ontario utilities may incur additional expense, although probably not large, in administering their contracts with direct purchasers.

Direct purchase arrangements may require the connection of gas reserves in Alberta that are not now producing to expanded field gathering systems, and possibly also the expansion of the NOVA system. NOVA charges are borne by all gas producers in Alberta. Since today's deliverability capacity more than adequately covers current demands, such additional expenditure could be regarded as unnecessary. Conceivably this could lead to an increase in the ABP. On the other hand, if one takes a very long-term view, the outlay on such facilities might be seen as advanced spending.

Some gas producers in Alberta would benefit from direct purchases if these lead to gas resources being produced at a higher level than at present. Other producers already committed to TCPL would lose market unless they were released from those commitments to enable them to compete for direct purchase outlets.

Some of the above considerations, and others of concern to the Alberta public interest, would be addressed by the Alberta Government agencies upon application being made by the direct purchaser or its Alberta affiliate for a permit to remove the gas from Alberta.

Alberta government agencies were not represented at the hearing, and no direct statements as to their position were made. The participants' views as to the likely response from those agencies were not consistent, and it is pointless to speculate. We note that approval was given in July 1983 to the application of SOQUIP to remove its own natural gas over a 15-year period. But the particular circumstances of that application would make it unwise, in our view, to place weight on the approval as a precedent.

Public Interest Aspects

A study jointly commissioned by Consolidated Natural Gas and Inco was prepared by Foster Research of Calgary to consider the economic impact and desirability, from Ontario's viewpoint, of direct purchases.

Two cases were considered to identify lower and upper limits of likely net benefit. In the first case it was assumed that Ontario industry would acquire 10 Bcf annually by direct purchase, displacing an equivalent volume supplied by other Alberta producers. In the second case it was assumed that the competitive advantage of direct purchase would permit an entirely new industrial plant to be established in Ontario using 10 Bcf annually.

The study concludes that, on the assumptions made, Ontario benefits would range from approximately \$8 million to \$147 million over a 20-year period, in terms of the present value net benefit. The study was prepared for illustrative purposes only, and some of the assumptions made are debatable. Little weight was placed on the Foster study, because a firm proposal would be required for such a study to be of real value.

The ability of the Affected Industries to remain in business on a long-term basis in the markets which they serve would be enhanced by profitable direct purchases undertaken as good business decisions. Based on the evidence in this hearing, in our opinion the development of successful direct purchase arrangements would be in the public interest provided they can be so structured that Ontario utilities and their other customers were not adversely affected.

Terms, Conditions and Regulatory or Legislative Provisions

We look upon direct purchases as inherently long-term arrangements involving from long-term commitments to invest in Alberta gas reserves for the purchaser's own use. It follows that the arrangements with TCPL and the utilities should reflect this long-term aspect.

As a general principle, any distinguishable costs incurred by the Ontario utility as a consequence of direct purchases should be borne by the direct purchaser.

Specifically, the utilities' demand charge obligations must be identified and contractually transferred to the direct purchasers for the remaining life of the utilities' contracts with TCPL. The utilities should no longer be responsible for the direct purchaser's forecast of gas needs, and the utilities' risks would be decreased on that account.

Direct purchasers must contract for back-up supplies to cover the risk of failure from their primary sources.

As we see it, the utility would normally buy the gas from the direct purchaser at the Ontario connection with TCPL and resell it to the direct purchaser delivered to the latter's Ontario plants, earning a mark-up similar to that which it would otherwise earn. No legislative changes would be required for contracts entered into voluntarily. However, amendments to the Ontario Energy Board Act may be required to give the Board the power to fully implement direct purchases.

The direct purchaser would contract with TCPL for transmission service using TCPL's T-Service tariff either by free negotiation with TCPL or by order of the NEB.

If the direct purchaser desired to revert to regular customer status at the end of the contract with the utility, this should be a matter for free negotiation of a supply contract with the utility, as if the applicant were a new customer.

All arrangements between the utilities and the direct purchasers concerning natural gas to be delivered for use in Ontario would be the subject to the approval of this Board on the assumption that all other legislative and regulatory requirements had been met.

No distinction should be made between incremental and existing volumes in terms of eligibility for direct purchases. The volumes should be subject only to the direct purchaser's business decision, having regard to all the circumstances, including the acquisition of gas in Alberta, transportation and delivery.

Precedent-Setting Aspects

In addition to the Affected Industries, Dow Chemical supported direct purchasing.

Dow Chemical is a large-volume user of natural gas, taking approximately 17.5 Bcf per year into its petrochemical plant at Sarnia, and probably will want to make a direct purchase arrangement.

Fears were expressed by some opponents of direct purchasing that, once allowed, there would be a flood of applicants for direct purchase arrangements. However, the only industrial users of gas represented at the hearing were the Affected Industries and Dow. Their combined gas requirements would total 58-60 Bcf/year when C-I-L's expansion and the Sunoco addition are completed.

Some participants argued that entities such as school boards and greenhouse operators might band together to arrange additional direct purchases. Others felt that the benefits of direct purchasing would induce other energy users to switch to gas, thereby having a positive effect on gas demand overall. Estimates of the potential volume of gas that might be the subject of direct purchases by industry in Ontario ranged from 100 to 200 Bcf/year, or some 15 to 30 percent of present total Ontario usage.

We believe that direct purchasing should be a mechanism open to all, but that in practice only relatively large industries with high demands and high load factors are likely to be interested in making the long-term commitment to the investment and contractual obligations required.

Apart from industrial users, it is possible that eventually the three major Ontario utilities, all of which have affiliates active in Alberta exploration, would wish to bring their 'own' gas into Ontario. This would mean that

essentially all gas moved from Alberta to Ontario would then become the subject of direct purchases. It should be noted that if extra-provincial exploration is not a function of the utility regulated by this Board or is not directly carried out by the utility, the benefits of the utility's extra-provincial production profits would not necessarily flow to the Ontario customers.

Furthermore, market responsiveness in official pricing would probably improve if a large percentage of Ontario requirements was the subject of direct purchases.

As for the Ontario utilities competing with direct purchasers, it would appear to us to be acceptable that the direct purchaser, being also an industrial user, should strive to maximize the use of its own gas in its own facility, leaving any balance to be the subject of a negotiated purchase from the utility.

If direct purchasing of natural gas became common, the role of TCPL would change considerably: it would be less of a purchaser than a transmitter of gas and, to the extent that direct purchasers assumed responsibility for their own demands, the problems of forecasting gas demands would be reduced for TCPL. Such a change may be beneficial for TCPL.

Summary

We therefore report as follows:

Components of Direct Purchases

- Direct purchasing would require the Ontario industrial purchaser:
 - to acquire an interest in Alberta gas production,
 - to obtain a permit to remove the gas from Alberta, or obtain access to an existing permit,
 - to contract with TCPL for transmission service to move the gas from Alberta to Ontario,
 - to contract with the Ontario utility for movement of the gas within Ontario to the purchaser's plant.

Benefits

- The benefit of direct purchases lies in the potential production profits accruing to the direct purchaser as an equity owner in gas production in Alberta; since gas prices will probably not be affected, other Ontario gas purchasers will not benefit directly.
- Some gas producers in Alberta could benefit from direct purchases while others could lose. Some additional expenses may be added to the Alberta Cost of Service.

However, such matters would come before Alberta Government agencies, the position of which on these matters is at present unknown.

- Direct purchases by any large-scale gas users, not merely feedstock users, are seen by us as useful commercial measures capable of strengthening Ontario industry and, as such, would be in the public interest provided Ontario utilities and their other customers are not disadvantaged. Each case should be considered on its merits by the Ontario Energy Board at normal rate hearings or such other time as is appropriate.
- Direct purchases are long-term strategies, not short-term measures for immediate benefits.

Investment and Time Required

- Large investments may be required, which may be more burdensome to some than others.
- A minimum of 18 months would probably be required to establish the direct purchase mechanisms. In addition, several years may be required to pay out a successful investment in Alberta before profits would be available as a benefit to the user in Ontario. Those Ontario industries which have already invested in gas reserves in Alberta would possibly have some advantage over newcomers.

Effect on Gas Demand

- There is little likelihood of a large increase in overall gas demand for use in Ontario as a result of direct purchases.

Possible Problem Areas

- There are two important matters that may require resolution before progress can be made in direct purchases:
 - (i) the transfer to the direct purchasers of the Ontario utilities' demand charge obligations to TCPL
 - (ii) the establishment by TCPL with its contracted producers in Alberta (and perhaps with TOPGAS) of the extent to which volume offtake obligations can be reduced, in order to facilitate direct purchases.

Forecasts and Security of Supply

- Direct purchasers, as contractors with TCPL, would assume greater responsibility and risk for accurate forecasting and would be totally responsible for their own back-up supplies.

Eligibility

- Direct purchases should be available to all large-scale natural gas purchasers who wish to make the investment and take the risks without distinction as to whether the gas volumes concerned are new, included in existing forecast demands or incremental.

In favouring direct purchases in principle, we have assumed that the proponents would be able to arrange for, among other things:

- access to gas reserves in, and their unfettered removal from, Alberta;
- transportation to the direct purchasers' plants in Ontario in such a manner that the Ontario utilities and their other customers are not disadvantaged;
- adequate day-to-day gas supply and adequate back-up gas supply to cover unforeseen contingencies.

Reference was made at the hearing to the possibility that direct purchase might have some adverse effect on security of gas supply, but there was little discussion on it. We do not regard this as a major possibility. However, when a direct purchaser commits itself to arrange and be accountable for secure gas supplies as a normal business decision, one of the options facing the direct purchaser in the event of an unexpected failure in its gas supply arrangements (i.e. outside a province-wide general shortage)

would be to cut back or shut down its Ontario plant during the period of shortage. Having assumed the risks of its own gas supply, similar to arrangements made by industry for the procurement of raw material necessary for its operations, the direct purchaser would have no right to expect support from the utility. In considering back-up supply arrangements to cover contingencies, direct purchasers might also wish to consider contracting with the utilities for access to gas supplies maintained by the utilities as "surplus", with the cost of such arrangements to be borne by the direct purchasers, not by the utilities' other customers.

Subsection 1 of section 42, found in Part II of the Act which relates to Gas Priorities and allocation states in part that ". . . no person, except a distributor, shall use gas in Ontario that has not been acquired from a distributor." Part II has not been proclaimed; however, on proclamation it would frustrate any direct purchase scheme which did not envisage a purchase of the gas from the distributor as part of the scheme. To accommodate proposed direct purchases, subsection 1 of section 42 would have to be amended. The Board is also concerned that in a time of gas shortage in the province the direct purchaser should be subject to the allocation plan as provided in Part II of the Act. Again, some provision would have to be made to ensure

that all gas supplies entering the Province, including those under direct purchase arrangements, would be subject to the allocation plan.

We recognize that, if government accepts direct purchasing as a principle, large industrial gas users may wish sometime in the future to locate their operations in Ontario in a manner inconsistent with the present utility distribution network. For example, it is conceivable that the economic advantages of direct purchasing may lead such a user to wish to locate at a point adjacent to the existing TCPL line, to which the user's plant would be connected by its own supply line.

There was no evidence at the hearing that such a step is planned, or even contemplated, by any present industrial user. Nevertheless, it is as well to consider this as a possibility that could have an impact on the utility currently serving that user or, in the case of a new industry, the utility which would expect to serve it.

The many possible questions that could arise cannot be answered now. However, we believe that the following should be borne in mind:

- i) Such developments, while involving large users of gas, are likely to be small in number. It can be expected that they will arise from business decisions which, in themselves, are likely to be beneficial to Ontario.

- ii) Such developments are unlikely to arise soon. Apart from other considerations, such as the general state of the economy, the development of a specific direct purchase arrangement is likely to take considerable time - as stated elsewhere, long enough to be reflected in a utility's forward planning.
- iii) Other developments may occur which will mitigate the effect on a utility of such a move on the part of an industrial user.
- iv) The economic benefits of industrial developments based on direct purchases may well outweigh any disadvantages.
- v) Any proposal to receive gas directly from TCPL should always be subject to the approval of this Board. The approval process would take into account the interests of the affected utility and its customers.

Recommendations of the Board

1. *That direct purchasing of natural gas, regardless of end use, by any Ontario user be endorsed by the Government of Ontario as being in the long-term public interest, provided the interests of the Ontario utilities and their customers can be protected.*

In making this recommendation, the Board assumes that such arrangements can be properly constructed to protect the interests of others. There is some uncertainty at this time because firm proposals have yet to be formulated and we have been called upon to weigh the balance of largely unknown effects. Much negotiation remains to be accomplished by the proponents of direct purchasing. In making this recommendation we do so in the belief that the proponents will, upon endorsement by the Ontario Government, investigate thoroughly all aspects involved in direct purchasing with the objective of commencing formal negotiations as soon as possible.

2. *That the Government of Ontario give consideration to amending the Ontario Energy Board Act as required to fully implement direct purchases.*
3. *That the Government of Ontario give consideration to supporting the proponents of direct purchasing before the relevant regulatory bodies in other jurisdictions.*
4. *That the Ontario Energy Board be authorized to receive and review in public rate hearings or such other time as is appropriate any proposed direct purchase arrangements concerning natural gas to be delivered for use in Ontario, with the objective of approving such arrangements if, in the opinion of the Board, they were in the public interest and adequately protect the interests of other parties in Ontario.*

DISPARITY IN PRICES AND RATES AND THE
DESIRABILITY OF A COMMON FEEDSTOCK RATE

The fourth matter directed to the Board's attention concerned any disparity in prices and rates among the Ontario utilities for gas supplied to the Affected Industries and the desirability of introducing a common rate across Ontario for gas used as a feedstock.

Disparity in Prices and Rates

From 1965 to 1980, C-I-L's average unit gas cost was the lowest of the three ammonia producers. In 1981 its costs were equal to those of Nitrochem. In 1982 Nitrochem had the lowest unit cost and Cyanamid the highest, while in 1983 C-I-L had the highest unit cost (see Table 1, prepared by Cyanamid).

As between Cyanamid and Nitrochem, the rates to Cyanamid were lower than or equal to Nitrochem's during the period 1965 through 1975. Thereafter, with the exception of 1980, Nitrochem's rates have been lower than or equal to Cyanamid's.

An analysis performed by Cyanamid's witness Mr. Larson (see Table 2) shows that during the period from January 1981 through May 1983, on a monthly basis, Nitrochem consistently had the lowest average unit cost of gas more

Table 1

COMPARISON
AVERAGE UNIT COST OF GAS
1965-1983
(\$ per Mcf)

	<u>Cyanamid</u>	<u>Nitrochem</u>	<u>C-I-L</u>
1965	0.52	0.53	0.46
1966	0.52	0.54	0.46
1967	0.52	0.54	0.46
1968	0.54	0.54	0.46
1969	0.54	0.54	0.46
1970	0.55	0.55	0.46
1971	0.55	0.55	0.46
1972	0.55	0.55	0.45
1973	0.57	0.57	0.49
1974	0.66	0.68	0.57
1975	0.95	0.98	0.85
1976	1.46	1.43	1.34
1977	1.68	1.67	1.62
1978	2.01	2.00	1.95
1979	2.19	2.19	2.14
1980	2.48	2.53	2.47
1981	3.25	3.17	3.17
1982	4.08	3.82	3.93
1983	4.41	4.29	4.47

Source - Argument of Cyanamid
Schedule 2, Pages 1 and 2

Table 2

**COMPARISON
AVERAGE UNIT COST OF GAS
BASED ON MONTHLY INVOICES
JANUARY, 1981 - MAY, 1983
(¢/M³) (\$ per Mcf in brackets)**

			<u>Nitrochem¹</u>		<u>C-I-L²</u>		<u>Cyanamid³</u>
1	1981	Jan	10.41	(2.95)	10.59	(3.00)	10.20 (2.89)
2		Feb	10.45	(2.96)	10.69	(3.03)	10.87 (3.08)
3		Mar	10.41	(2.95)	10.69	(3.03)	10.98 (3.11)
4		Apr	10.45	(2.96)	10.69	(3.03)	10.87 (3.08)
5		May	11.01	(3.12)	11.29	(3.20)	10.84 (3.07)
6		June	10.94	(3.10)	11.29	(3.20)	10.98 (3.11)
7		July	11.40	(3.23)	11.19	(3.17)	11.93 (3.38)
8		Aug	11.47	(3.25)	11.79	(3.34)	11.97 (3.39)
9		Sept	11.51	(3.26)	11.79	(3.34)	12.71 (3.60)
10		Oct	11.58	(3.28)	11.85	(3.36)	12.57 (3.56)
11		Nov	11.51	(3.26)	11.95	(3.39)	12.32 (3.49)
12		Dec	11.54	(3.27)	11.85	(3.36)	12.28 (3.48)
13	1982	Jan	11.58	(3.28)	11.85	(3.36)	12.28 (3.48)
14		Feb	13.10	(3.71)	12.05	(3.41)	13.06 (3.70)
15		Mar	13.34	(3.78)	13.85	(3.92)	14.23 (4.03)
16		Apr	13.38	(3.79)	13.85	(3.92)	14.26 (4.04)
17		May	13.27	(3.76)	13.85	(3.92)	14.26 (4.04)
18		June	13.27	(3.76)	13.85	(3.92)	14.30 (4.05)
19		July	13.41	(3.80)	13.85	(3.92)	14.30 (4.05)
20		Aug	14.37	(4.07)	13.85	(3.92)	14.33 (4.06)
21		Sept	14.72	(4.17)	14.85	(4.21)	16.63 (4.71)
22		Oct	14.69	(4.16)	15.15	(4.29)	15.70 (4.45)
23		Nov	14.95	(4.24)	15.15	(4.29)	15.66 (4.34)
24		Dec	14.95	(4.24)	15.15	(4.29)	15.61 (4.42)
25	1983	Jan	14.80	(4.19)	15.15	(4.29)	15.65 (4.43)
26		Feb	15.02	(4.25)	15.15	(4.29)	15.70 (4.45)
27		Mar	15.16	(4.29)	15.37	(4.35)	15.74 (4.46)
28		Apr	15.26	(4.32)	15.40	(4.36)	15.76 (4.46)
29		May	15.26	(4.32)	15.70	(4.45)	15.52 (4.40)

Notes:

1. Source - Ex. 3.2.3, Schedule 2, Page 2
2. Source - Ex. 3.2.3, Schedule 2, Page 3
3. Source - Ex. 3.2.3, Schedule 2, Page 1

(Evidence by Mr. C. A. Larson)
(\$ per Mcf in brackets added by the OEB)

often than the other two ammonia producers and Cyanamid had the highest. However, the table shows that during this period each ammonia producer had the lowest rate and the highest rate at least twice.

According to final exhibits provided by each ammonia producer, the average cost of gas in 1983 to C-I-L will be \$4.47/Mcf, to Cyanamid \$4.41/Mcf and to Nitrochem \$4.29/Mcf.

All three major Ontario utilities use fully allocated costs as a basis for rate setting. No rates are set on the basis of a cost separation study. Some differences in rates can be attributed to differences in the cost of serving customer classes. Each ammonia producer stated that he was prepared to pay the cost to serve him. However, historically there has been a continuing dispute with the utilities on the appropriate costs to be allocated to each ammonia producer, as well as on the cost allocation techniques themselves.

In order to assist the Board in reporting on the nature, extent and causes of any disparity in prices and rates among the Ontario distribution utilities for natural gas, the Board retained Industrial Economics, Incorporated ("IEc."), to compare and contrast the cost allocation methodologies employed by Ontario's three major gas distributors. In particular IEc. was asked to review how

costs are allocated to large industrial firm customers, including the ammonia producers. IEc. was not asked to evaluate the appropriateness of the particular cost allocation methods used by each distributor.

Aside from being gas distributors, the three utilities are not identical. Some of the major differences in size and nature of each utility system identified by IEc. are:

- residential sales as a percentage of total sales volume are 29 percent for Consumers', 13 percent for Northern, and slightly below 20 percent for Union;
- large firm industrial sales as a percentage of total sales volume are 10 percent for Consumers', 43 percent for Northern and 21 percent for Union;
- interruptible sales comprise some 25 percent of total sales volume for each utility;
- storage comprises some 23 percent of Union's rate base, 18 percent of Consumers' and a very small percentage of Northern's;
- distribution facilities comprise some 85 percent of Northern's rate base, 55 percent of Consumers' and 49 percent of Union's;
- Northern has no transmission facilities identified as such, while Union has an extensive transmission system. Consumers' also has transmission facilities;

- Consumers' rate base is 60 percent larger than Union's and five times the size of Northern's;
- for Northern, 94 percent of total operating and maintenance costs are gas supply costs, for Consumers' and Union the percentage is 92 percent.

Given the last statistic, IEc. observed that it was not surprising that the allocation of gas costs to customer classes will have the predominant effect on the fully allocated costs for these classes.

IEc. chose the "1982 test year" as the period for its analysis. It relied on cost allocation studies prepared by each utility and filed with the Board for rate-making purposes. To make the studies comparable, adjustments were required. The adjustments were not questioned by the utilities or by the Affected Industries.

Union allocates all gas supply costs as variable or commodity costs. Both Consumers' and Northern allocate a portion of these costs to demand charges and the rest to what IEc. called "a winter commodity surcharge". All three utilities allocate the variable or commodity costs to charges based upon the volumes of gas sold to each customer class. Consumers' and Northern allocate demand charges based on firm customers' peak demand. No demand charges are allocated to interruptible customers. Both Northern and Consumers' allocate the winter commodity surcharge to

customer classes on the basis of volumes of gas consumed in the winter period.

IEc. found that these differences in classification among the utilities could result in a difference of over 8 percent in gas supply costs allocated to Consumers' firm industrial customers. Smaller differences in allocated costs to firm industrial customers could result for the other two utilities - less than 4 percent for Union and less than 1 percent for Northern.

The differences arising from different methods of classifying and allocating storage, transmission, distribution and other costs were not significant.

Overall, IEc.'s analysis showed that whatever method of classification and cost allocation is applied by Northern, the result for its large industrial firm customers was almost identical in 1982. In the case of Consumers', the difference in the underlying cost allocation methods could produce as much as 6.7 percent difference; for Union the difference, depending on the method, could be as much as 2.3 percent.

In addition to the Board-commissioned study, Mr. Larson, appearing on behalf of Cyanamid, also reviewed the rates to the three ammonia producers in Exhibit 3.2.3, although his evidence related more to the appropriate level of rates as opposed to the disparity among the three

utilities. He examined gas costs, distribution costs which he had extrapolated from cost separation studies he had prepared in earlier hearings before the Board, and "mark-up", which was the difference between the cost to the distributor and the rate to the customer. It should be noted that by Mr. Larson's definition, "distribution costs" are only the actual costs incurred in directly serving the particular ammonia producer. This contrasts with fully allocated costs, which include system-wide costs such as storage costs and transmission costs, which are used by the utilities for rate-making purposes. Mr. Larson concluded that gas costs and his distribution costs did not explain the rate differentials which result in rate disparity. His analysis showed that the mark-up was the same for C-I-L and Cyanamid and lower for Nitrochem.

The findings of IEc. were not disputed by the ammonia producers or the utilities. Board Counsel submitted that the evidence did not show that any one feedstock customer suffered uniquely from a disparity in gas costs. He suggested that the different methods used by each utility to classify gas supply costs could be justified by the different characteristics of the utility, citing in particular storage capability. However, since it appears that classification of gas supply costs was the key difference, he recommended that the Board closely review the

classification of gas supply costs in the next rate proceeding for each of the three utilities.

With reference to Mr. Larson's evidence Board Counsel, citing several earlier Board decisions, pointed out that the Board had rejected cost separation studies, which attempt to segregate and cost out separately the utility plant used for an individual customer, as a useful basis for rate-setting. He submitted that evidence in this hearing did not justify, on the grounds of equity, a departure from traditional cost-related rates. In this regard Northern took essentially the same position.

Cyanamid argued that the methods of classifying gas supply costs used by Consumers' and Union penalized the high load factor customer with large volumes and said that Northern's method is more appropriate. Cyanamid also encouraged a review of the methodology used.

Cyanamid continued to argue that the results of the cost separation studies performed by Mr. Larson should be used for rate-setting purposes and that feedstock users should be relieved of paying for services and facilities that they do not use.

C-I-L noted the disparity in rates during 1983 and the projected disparity in 1984 among the three ammonia producers and submitted that the disparity between its price and the prices paid by Cyanamid and Nitrochem was undue.

C-I-L stated that measuring disparity by reference to class overcontribution derived from the cost allocation study submitted by each utility was inappropriate without further adjustment. It accepted that on the basis of gas supply costs there might be justification for disparity between the price it pays and the price Nitrochem pays, but saw no justification for any material disparity between the price paid by it and that paid by Cyanamid.

Finally C-I-L submitted that the major cause for the then current disparity between the price paid by it and the price paid by Cyanamid was that the Board had recently ordered the price paid by Cyanamid to be reduced effective May 1, 1983 and that about the same time the Board ordered the price paid by Union's Rate 7 customers (C-I-L belongs to this class) to be increased.

Nitrochem concluded that it was difficult to tell the extent to which the difference in price among the three ammonia producers over time had related to differences in costs. It supported cost-based rates as determined by Mr. Larson's cost separation studies. However Nitrochem emphasized, following upon the evidence of their witness Mr. Grigg, that the disparity in the price of gas was not the "fundamental" problem of the ammonia producers. That problem, according to Nitrochem, was the extent to which these producers have gas prices "which are not remotely competitive with those to competing [ammonia] producers".

Rates as determined by the Board in the past have not been based on studies of fully allocated costs alone, and the Board has consistently rejected this concept. There are also in the generally accepted criteria for determining just and reasonable rates:

- stability of rates to customers;
- fairness of the specific rates in the apportionment of total costs of service among the different customer classes; and
- avoidance of undue discrimination in rate relationships.

Judgment, which takes into account these criteria as well as competition with other fuels and the risk associated with each customer class, is an important factor in rate-making.

Given the divergence in the characteristics of the three major gas distributors, it would have been a coincidence if the ammonia producers had had the same rates during the same period.

The study prepared by IEc. discloses that one cause of the rate disparity is the method of classifying gas supply costs. Other causes of the disparity are not as tangible and were not explored to any degree during the hearing. The separation studies prepared by Mr. Larson have been examined by the Board in the past and the findings have been rejected for rate-making purposes. The reasons for

rejection have been given fully each time. For example, the Board said in Reasons for Decision in a Northern case, E.B.R.O. 364-II, dated July 1980:

"In the Board's opinion, the industrial separation studies demonstrate that any attempt to allocate or assign costs to a single customer departs even further from system reality . . . As the cost allocation process attempts to isolate the costs of a single customer, the effects of the judgmental decisions can be significantly increased. In addition, results could change significantly over a short time as customers are added or deleted or change their pattern of use."

The disparity in rates among the three utilities have been in existence for some two decades, and no Ontario ammonia producer has had the advantage throughout the whole period. C-I-L appears to have had an overall advantage for a longer period than either Nitrochem or Cyanamid. However, C-I-L claims that there is undue discrimination now that the advantage is no longer in its favour. In recent years, depending upon the timing of the rate increases granted by the Board, each of the three ammonia producers has enjoyed a cost advantage from time to time. To Mr. Grigg of Nitrochem the differences between the costs of gas to the three feedstock users in Ontario have not been significant. We agree with this assessment.

We find that the major causes of price disparity for natural gas between the affected industries are differences in:

- classification of gas supply costs;
- cost allocation methodology;
- system characteristics; and
- timing of rate increases.

The evidence in this hearing does not lead us to conclude that cost separation studies are appropriate for rate-setting purposes.

A Common Feedstock Rate

Earlier in this report it was noted that there was no commonly accepted definition of a "feedstock". Those who might gain an advantage in having a lower feedstock rate defined the term in such a manner as to include themselves within it. Thus Cyanamid and Nitrochem defined "feedstock" narrowly, resulting in all other industries being effectively excluded, while Inco and Sunoco defined it in much broader terms. Dow's concept of "feedstock" was entirely different from the others.

However defined, there were only two proponents of a common feedstock rate - Cyanamid and Nitrochem. All others including the three utilities, C-I-L, Dow, Inco, Sunoco, Consumers Fight Back and Board Counsel opposed such a rate. Nevertheless Dow, Inco and Sunoco said that if a special rate for feedstock use was available, each would consider whether or not to take advantage of it.

Although rates based on cost separation studies and decremental rates, which recover only the variable cost of the utility in providing gas service, were briefly examined during the hearing, it was evident that the level of relief provided by either methodology was not adequate to meet the expressed needs of Cyanamid and Nitrochem. Furthermore, such rates would be affected by the individual customer location and by the variable cost of the particular utility, so that the resulting rates would likely not be common. These rate-making concepts did not form part of these two ammonia producers' final proposals.

The Proposal for a Common Feedstock Rate

The proposals of Cyanamid and Nitrochem are similar in principle, but differ slightly in application. The basic proposal is a gas rate payable by the Ontario ammonia producer which is equal to the average delivered U.S. price of natural gas to ammonia producers as published semi-annually by The Fertilizer Institute ("the TFI rate" or "the base rate"). At the time of the hearing the reported base rate was Cdn. \$2.96/Mcf. The proposal assumes that the rate to be charged to the Ontario ammonia producer by the utility would be the rate determined by the Board in the normal manner under the provisions of the Ontario Energy Board Act. The difference between the Board-approved rate

and the base rate would be paid out of the Provincial revenues. This provincial contribution (both Cyanamid and Nitrochem were sensitive to calling the Provincial contribution a subsidy or a grant) would be paid first out of the monies returned to the Province by the federal government under the federal Public Utilities Income Tax Transfer Act, and the balance, if required, out of the Consolidated Revenue Fund. However, if the Province declined to use general revenue for this purpose, Cyanamid proposed that the remaining customers of the gas utility would make up the revenue deficiency by paying increased rates.

The arrangement was to remain in effect initially until the end of 1986 or until either the base rate is higher than the Ontario cost or the direct purchase scheme is in place. If neither event takes place prior to the end of 1986, the proposal would be reviewed again.

Neither proponent provided details of how the payment from the Province to the utility would be made. It was clear that neither wished to pay the full Board-approved rate initially and then wait for a subsequent rebate of the portion of the payment in excess of the base rate.

Both proponents submitted that this common feedstock rate should be limited to the three ammonia producers and possibly Cornwall Chemicals Limited on the

basis that all used gas as a feedstock, that they were captive to natural gas, there being no other economically feasible alternative, and that the cost of natural gas was the predominant component of the cost of producing the end product - ammonia. The latter criterion effectively excluded both Inco and Sunoco, the first excluded Dow. Nitrochem went further and urged the Board to establish separate rate classes for the ammonia producers, the class being defined in terms of the above criteria.

Cyanamid did not think that financial need or performance should be a benchmark for eligibility because, as Mr. Day stated: "I think that we [Cyanamid] would vigorously oppose any review of our profitability . . . once you start doing that, you start getting into whether we are operating at a competitive level, whether our pricing policies are satisfactory, whether our costs are acceptable and so on."

Nitrochem agreed to a provincial audit of its financial affairs during the period that it was in receipt of the provincial contribution.

The TFI average gas cost is published some two or three months after the average cost is determined. In this regard Cyanamid wanted a retroactive adjustment to its base rate for this lag period. Nitrochem on the other hand was ready to forgo any retroactive adjustment.

Cyanamid differed from Nitrochem in one further respect. Under Cyanamid's proposal, all gas used, whether for feedstock or for energy, would be priced at the same rate. Nitrochem stated that it would only need the special rate for its feedstock gas.

In support of their proposal for a common feedstock rate, Cyanamid and Nitrochem cited the following considerations:

- it is the only proposal that provides immediate financial relief to the ammonia producers;
- it will give Ontario control over the survival of its ammonia industry and will ensure security of supply to Ontario consumers;
- if the ammonia industry does not survive in Ontario, the Ontario farmers' fertilizer supply may be jeopardized;
- the ammonia industry can only survive and be a viable industry if it can obtain competitive production costs;
- neither the federal nor Alberta government is likely to take action to help this Ontario industry;
- the proposal is the only one which provides competitive production costs which will allow all three major ammonia producers in Ontario to compete among themselves; and

- the cost of closure of the ammonia plants to the gas utilities in Ontario and the public in general will be higher than the cost to implement the common feedstock rate proposal.

The retention of competition among the Ontario ammonia producers was of particular importance to Cyanamid in view of C-I-L's expansion plans and the possibility that the new C-I-L plant would be eligible for incentive pricing available for new gas use. We had no direct evidence relating to any government incentive pricing scheme for industrial gas use, although there were numerous newspaper reports on this subject.

To quantify the negative impact on the province and Canada, Cyanamid and Nitrochem jointly commissioned a study ("the Waverman Study") to examine the economic effects of a possible shutdown of all three ammonia plants simultaneously at the beginning of 1983. The study was prepared by the Institute of Policy Analysis, and the chief spokesman for the Institute was Dr. Waverman.

Economic models were used to estimate the direct and indirect economic effects of the resulting initial loss in output and jobs in Ontario, Alberta and Canada as a whole. The model was calibrated in terms of constant 1971 dollars. The results of the study were presented for a five-year period, 1983 to 1987.

Tables 3 and 4 below show the impact on four key indicators - direct loss in real output, change in gross national product ("GNP"), change in gross domestic product ("GDP") and change in employment man-years for both the provincial and Canadian economies.

On a cumulative basis for the five-year period covered in the analysis, the absolute losses in employment income and other economic indicators are large, but placed in a provincial and national perspective on a percentage basis the effects are small even at the Ontario level. For example, Ontario employment impacts range from a loss of about 7/100ths of 1 percent in 1984 down to 3/100ths of 1 percent in 1987. At the national level, the comparable impacts are 4/100ths of 1 percent in 1984 and 1/100th in 1987. Nevertheless the local effects of closure could be severe, particularly in the Niagara Falls and Brockville areas.

Table 3

Impact on Canadian Economy*
(millions of 1971 \$)

	<u>Direct Loss in Real Output</u>	<u>Change in GNP</u>	<u>Change in GDP (at factor prices)</u>	<u>Change in Employment Man Years</u>
1983	-46.6	-113	-98	-1931
1984	-46.6	-168	-128	-3798
1985	-46.6	-146	-97	-2348
1986	-46.6	-145	-70	+26
1987	-46.6	-177	-76	+1301

* Source: Table 2, Exhibit 5.2.4

Note: In 1983 the change in GNP would amount to 9/100 of 1%.

Table 4

	Impact on Ontario Economy* (millions of 1971 \$)		
	<u>Direct Loss in Real Output</u>	<u>Change in GDP (at factor prices)</u>	<u>Change in Employment Man Years</u>
1983	-35.6	-58	-2062
1984	-35.6	-73	-3003
1985	-35.6	-62	-2562
1986	-35.6	-51	-1705
1987	-35.6	-54	-1295

* Source: Table 3, Exhibit 5.2.4

Evidence of the Institute for Policy Analysis, University of Toronto, on behalf of Cyanamid and Nitrochem.

Opposition to the Common Feedstock Rate Proposal

The opponents of a common feedstock rate of any kind put forward a number of considerations in support of their positions. There were three general categories of opposition: regulatory principles, availability to customer groups and source of funding.

On the question of regulatory principles, the opponents submitted that the proposal to create a preferred rate for special classes of customers presented a marked and potentially dangerous departure from the well-established rate-making principle that the rates charged should be based on the cost to a utility to serve the customer rather than on the ability of the customer to pay. It was pointed out that the TFI rate did not recover the variable cost of the

utility and in fact was even lower than Consumers' commodity cost of gas. This concern is particularly germane if the remaining customers of the utility have to make up the revenue deficiency. It was also submitted that the proposal had an implied concept of "good" use and "bad" use for natural gas and that only "good" use entitled the customer to special rates. It was further argued that the absence of an economically feasible alternative to natural gas should not be an excuse to change or ignore rate-making philosophy.

On the issue of rate availability, it was noted that other Ontario industries had suffered and were suffering economic hardship. It was submitted that to aid one particular sector through rate manipulation while excluding other sectors was clearly unfair. Moreover, it would be difficult to define eligibility in terms of process and/or level of use. The justification of limiting the availability to the ammonia producers because it would ensure security of supply to fertilizer users was rejected because the security of supply issue could equally apply to other end use products produced in Ontario. Besides, security of fertilizer supply was not a real issue.

The opponents also rejected Cyanamid's and Nitrochem's first claim on the funds obtained under the Public Utilities Income Tax Transfer Act. The federal taxes originally paid by the utilities are reflected in all the

rates of all their customers. It appears that when the tax rebate to the province is calculated, the tax generated by the gas sold for feedstock use is excluded. In any event the opponents argued that all utility customers are entitled to any rebate of these taxes, not just a select group in preference to all others.

Several other related concerns were also raised. First, if provincial funds are used to subsidize the cost of natural gas, the U.S. government might take countervailing action such as imposing import duties.

Second, it was argued that within the confines of this hearing, the financial need of the two proponents had not been fully examined, and the degree of assistance required to keep the two corporations financially healthy had not been clearly established. Cyanamid as a corporate entity was described by Mr. Day as "a pretty healthy company", with only the nitrogen portion of the Plant Food Division of the company experiencing losses. However, Consumers Fight Back stated in argument that "its (Cyanamid's) argument in this hearing is really an attempt to obtain a bit of quick cash to dividend out to the multinational parent before closing the doors." It was alleged by Inco and Consumers' that Nitrochem's financial difficulties had not been caused by the high cost of gas but by the high interest costs incurred as a result of an employee buy-out of the company in recent years.

Because Cyanamid at least wanted unconditional, no-strings, relief for a specific period, it was argued that there was a possibility that such reduced rates could be made available to the ammonia producers beyond the period needed to make them profitable.

Third, it was noted that not all the ammonia producers wanted the relief. C-I-L specifically opposed the proposal because it believed it could successfully operate within the range of rates available to it now and because it was concerned that a common feedstock rate supported by government subsidy could result in government incursion into its operations.

Justification for Limiting Availability
of Common Feedstock Rate

Aside from the Affected Industries and Dow, the other participants submitted little or no direct information to the Board that would make possible a detailed comparison between the ammonia producers and other industrial users as to use of gas, relationship of the cost of gas to cost of production, vulnerability in the marketplace, market environment in general, financial status and so on. Our conclusions on whether special rates should be limited to the ammonia producers are therefore based on limited general information. In making our determination, we have

essentially examined only the features cited by Cyanamid and Nitrochem as the basis for distinguishing their industry from others, for special treatment.

One reason cited as a distinguishing feature is that the ammonia producers use gas as a feedstock. As earlier noted, what constitutes feedstock use to one party does not necessarily constitute feedstock use to another.

The distinction drawn by the ammonia producers between feedstock use and energy use has several implications. One is that feedstock use is in some way a higher or better use of natural gas, deserving of special treatment. In the context of rate-making, we have strong reservations about this concept in principle. While use may be considered in times of gas shortages for purposes of allocating resources, we do not think that "use" should be a criterion for rate-making purposes.

It was also submitted that residential customers are distinguished from other customers on the basis of use. This is not the case. Availability of residential rates generally depends upon the nature of the premises to which gas is supplied. The gas may be used in these premises for many purposes, such as space heating, cooking, or refrigeration.

Another reason cited by the ammonia producers for special treatment is that their consumption of gas is high

and the cost of gas represents the major component of the production cost of the end product. We note that Dow's consumption represents 65 percent of its variable cost of producing chlorine, and Mr. Day of Cyanamid agreed that if the cost of gas represented over 50 percent of production costs, the cost would be a "very significant item" of any industry. There was no evidence on this issue with respect to industries other than the Affected Industries. However it appears that other industrial users may be facing similar problems to those of the ammonia producers in that the increasing cost of gas has had a significant impact on their profits and competitive position. It would not be equitable to single out one industry for special treatment without at least investigating if other industries are in similar circumstances.

From a rate-making point of view annual volumes and load factors can distinguish certain groups of customers from others. Again there was no information from other industrial customers to determine whether their usage is significantly different from that of the ammonia producers.

Another distinguishing factor cited by the two ammonia producers was that as feedstock users they were captive customers because there were no economically feasible alternatives to natural gas. However, any industrial user of gas such as Sunoco or Dow or any

residential customer who has made a major capital investment on the basis of natural gas use would appear to be a captive customer in the short to medium term.

Another consideration put forward for distinguishing ammonia producers from other industrial users was the assertion that natural gas is upgraded in ammonia production, thus giving it a value-added feature in contrast to natural gas used as an energy source. However, the value-added component in producing ammonia appears to be very small. There was virtually no evidence from other industries on this matter.

The effect of the cost of the end product, in this case fertilizer, on the competitiveness of Ontario agriculture was also cited as a reason for excluding other industries. It is recognized that the cost of fertilizer will affect the farming community. We expect, but have no evidence upon which to rely, that other end products produced in Ontario by other industries may have equal or similar impact on various sectors of the Ontario economy.

We conclude that the economic problems facing the ammonia producers are not unique, being shared in varying degrees by other industrial customers which use large amounts of gas in their processes and that the contribution by the ammonia producers to the wealth and well-being of Ontario may or may not be superior to that made by other

Ontario industries. For general rate-making purposes we are not satisfied that there are sufficient reasons to distinguish the ammonia producers from other large industrial gas users.

Implications of a Common Feedstock Rate

Before assessing the implications of a common feedstock rate for ammonia producers, a brief review of the proposal and means of implementation is in order. On the face of it, the proposal for such a rate appears very simple. An arbitrary base rate, in this case one that is tied to the U.S. average gas cost which may change semi-annually, would be established outside the regulatory process. The Board-approved rate for the ammonia producer, determined from time to time in accordance with the provisions of the Ontario Energy Board Act, would remain undisturbed. It should be noted that in the cases of Northern and Union, the Board initially approves a range rate and the ammonia producer and the utility negotiate a rate within that range, taking into account a number of factors including demand and minimum annual volumes. The difference between the base rate and the Board-approved rate (currently about Cdn. \$1.50/Mcf) times the volume of gas taken by the ammonia producer would constitute the utility's revenue deficiency.

If the utility's revenue deficiency were to be made up by a government subsidy, we see no further role for the Board in this scenario. However, if the difference were to be made up in whole or in part by the remaining customers of the utility, the Board would have to determine the degree of cross-subsidization to be attributed to each remaining customer class. Generally accepted rate-making principles would have to be abandoned since the Board-approved rate or range rate, which by definition must be just and reasonable and not unduly discriminatory, could no longer apply. Any shift in revenue recovery from the ammonia producers could be seen to be unjust and unreasonable and therefore unduly discriminatory. Consequently the rate hearing process would be prolonged, at additional cost to all parties, as each class of customer attempted to reduce the impact of subsidizing the ammonia producer or, following the lead of the ammonia producers, sought special exemption based on ability to pay.

Regarding the government subsidy proposal, Consumers' has stated that it does not want to be involved in it in any way. It wants to render its account for the full amount to Cyanamid and wants to be paid by Cyanamid. Cyanamid, on the other hand, wants to pay only the base rate and leave the balance of the account to be collected by the utility directly from the government. Presumably some sort

of arrangement would have to be concluded between the ammonia producer, the utility and the provincial government whereby these concerns could be resolved.

Such an arrangement would have to provide among other things for some method of monitoring the base rate and its relationship to the Ontario cost of gas, the Board-approved rate, the prompt payment by both the ammonia producer and the Province of the utility's account, the profitability of the ammonia producer and the progress of the direct purchase arrangements, if any.

The federal rebate under the Public Utilities Income Tax Transfer Act forms part of the provincial Consolidated Revenue Fund. Until the payment is received, the exact amount is not known by the Province. The amount of the payment varies from year to year. Recently there was a sizable overpayment which was subsequently adjusted, resulting in no payment for a subsequent year. In similar circumstances other provincial tax monies would have to be used for this purpose. In actual fact all payments to the ammonia producers would be from the Consolidated Revenue Fund.

We raise these issues merely to point out that the simplistic approach of the two proponents of a common feedstock rate failed to recognize or address a number of difficulties associated with their proposal.

A common feedstock rate would permit the ammonia producers to be competitive with their American counterparts in both the United States and eastern Canadian markets. It is not clear from the evidence that they would be competitive with all European imports. Among themselves, the situation is somewhat different. Mr. Day in his testimony stated:

"if they [the Alberta Government] permit incremental lower prices for incremental sales that would mean that C-I-L in its new plant could have very significantly lower prices than I do and they would just combine their total gas costs in such a way as to put me out of business. That frightens me to death."

Furthermore when asked where the greatest threat of competition to Cyanamid came from, Mr. Day replied that it was C-I-L. It was Mr. Day's opinion, however, that if all three ammonia producers had the same low-cost common feedstock rate, all would be profitable, although he recognized that C-I-L would be even more profitable. Whether C-I-L in these circumstances would reduce its price of ammonia to gain a competitive edge was not explored in the hearing.

Clearly, if a low common feedstock rate were approved for all other Affected Industries, their profit

margins would increase to some extent, but it is not known whether their competitive position would be materially affected.

Cyanamid submitted that there would be no implications for the gas utilities if the proposal is approved. On closer examination this is clearly not the case. The regulatory process would be affected if utility customers are required to make up any portion of the utility's revenue deficiency. Even if payment of the revenue deficiency were made entirely out of the provincial Consolidated Revenue Fund, there would be regulatory implications. For example, accounts rendered by Consumers' and Union to their feedstock customers are due within 10 days, those by Northern within 12. If the ammonia producers pay only the base rate, then to keep the utility whole, the Province would have to pay the balance of the account within the same time frame. If there were payment delays, the utility would have a reasonable basis upon which to apply to the Board for an increase in its working capital. If the increase were granted, higher rates to all customers would result. The process would also entail higher administrative costs to the utility.

Furthermore the regulatory rate-making process would be affected by the knowledge that the government is subsidizing a special category of customers.

We conclude that the proposal would create regulatory difficulties and would impose additional costs on the utilities which would in turn be passed on to the customers of the utility.

The Public Interest

The Board has been asked to determine whether it is in the public interest to implement a common feedstock rate. The statistics and conclusions provided in the Waverman study were not very helpful. In the first instance, the study is based on a "shock case", that is, it assumed that all three ammonia producers would close their operations in 1983. Secondly, it ignored the fact that C-I-L was planning to double its capacity by 1985. At the time of the hearing only Cyanamid had plans to close its ammonia plant complex unless it received rate relief. On the other hand Nitrochem stated that it planned to continue its operations regardless of the outcome of this hearing.

As pointed out earlier, the impact of the closure of all three plants on the federal and provincial economy is small. We know now that C-I-L, the largest ammonia producer, is not planning to close its operations. Even if Cyanamid were to close, the effect of C-I-L's new facility, which will have a greater capacity than Cyanamid's existing plant and will employ an additional 80 new employees, would be to mitigate the negative impact even further.

We recognize that Cyanamid employs some 450 persons at its Niagara Falls plants, and that the negative impact of closure of the plant will be concentrated almost entirely in the Niagara Falls area due to the layoff of a sizable number of skilled workers and the consequent ripple effect of the loss of earning power. We also recognize that the Province will suffer a revenue loss as a result and may incur some costs in the form of social assistance if the closure takes place. Nevertheless, the continued operation of the Cyanamid plant is not crucial to the survival of the ammonia industry in Ontario nor to the security of supply of fertilizer to Ontario agriculture. One-third of Ontario's market for ammonia is now served by U.S. producers. The balance of the demand can be supplied during the next two years by Nitrochem and C-I-L augmented by possibly cheaper imports from the United States and offshore sources. Thereafter, the new C-I-L facility should provide sufficient capacity to meet all the needs of the Ontario market.

On the evidence, a common feedstock rate may be crucial only to the survival of the two proponents. The cost of a common feedstock rate would be borne by the Ontario taxpayer alone or shared with the remaining gas-consuming customers in Ontario. We have no evidence to enable us to quantify the impact of this cost on the wealth and well-being of the province nor to determine whether it

would be greater or less than the cost of closure of any of the Ontario ammonia producers. Obviously the provincial economy would be better off if all three plants remain in operation and C-I-L's capacity was expanded without further assistance from anybody. However, as stated earlier the negative effects of closure of one ammonia plant would not be great throughout the province, but would certainly be felt in the immediate area of the plant.

From the foregoing findings, and taking into account the concerns of the ammonia producers and the opponents of a common feedstock rate, we conclude that such a rate would not be in the public interest.

Direct Subsidy as an Alternative
to a Common Feedstock Rate

If the decision is made by the Government of Ontario to ensure the survival of Cyanamid and Nitrochem, the Board would recommend the direct subsidy route, which would be unrelated to the regulatory process. Only those ammonia producers in need would receive assistance; the financial integrity of each producer could be fully examined outside the public hearing process to make certain that only the level of assistance required to ensure survival was given, having regard also to the parent's financial position; the regulatory process would not be interfered

with, and the issue would not be confused by the euphemism of a "common feedstock rate". Terms and conditions could also be attached if necessary.

In the case of either a common feedstock rate or direct subsidy the Ontario taxpayer would be paying the cost, but in the case of a direct subsidy the amount could be clearly identified, limited and monitored.

It is clear from the foregoing that we are opposed to a common feedstock rate in any form. If an industry needs assistance, we believe that a selective subsidy is to be preferred. The required subsidy should be paid out of the provincial Consolidated Revenue Fund without regard to the level of funds available under the Public Utilities Income Tax Transfer Act, and not out of revenues generated by the other customers of the utility. The gas user should be required to submit its books to provincial audit to prove that there is a continuing need for the assistance.

Summary

From all of the above we report as follows:

Competitive Effects

- a common feedstock rate tied to the U.S. average gas cost would make the ammonia producers competitive with their U.S. counterparts and possibly with some European producers. Given C-I-L's plans to complete a more

efficient plant by 1985, it is likely that it will have a competitive edge over the two remaining Ontario ammonia producers;

Effect on Utilities

- the implications of a common feedstock rate for the distribution utilities would depend on the arrangements made with the provincial government, if government funds were used to supplement the common feedstock rate. If the utilities' customers are charged with increased rates to compensate for the lost revenue, there would also be additional hearing costs to the utilities;

Conclusion

- the differences between the ammonia producers and other affected industries or between the ammonia producers and other large industrial users of gas do not warrant distinguishing them from all other industrial users of natural gas for purposes of justifying a common feedstock rate;
- a common feedstock rate is not in the public interest and is not supported by us;
- if it is government policy to assist the ammonia producers during the current down cycle of the ammonia market, a direct subsidy to the ammonia producers is preferred by us to an indirect subsidy.

Recommendations of the Board

5. *That the proposal by Nitrochem and Cyanamid for a common feedstock rate be rejected by the Government.*
6. *That if it is deemed appropriate by the Government to assist ammonia producers in Ontario a direct subsidy be considered by the Government in preference to the indirect subsidy by means of a common feedstock rate.*

Toronto, February 1984

Appendix A

TO ALL PARTICIPANTS IN THE JULY 18, 1983 PUBLIC
HEARING REGARDING NATURAL GAS USED AS A FEEDSTOCK

List of Issues to be Addressed in Evidence

The following list of issues is intended to be used as a guide to assist in the preparation of evidence for the forthcoming hearing.

The list has been prepared by Board Counsel and is intended to supplement, not to replace or to interpret, the provisions of the Order-in-Council.

Not all participants will be in a position to address all the issues identified. In addition to addressing matters outlined in the Order-in-Council each participant is requested to submit evidence on those issues in which it has a direct interest. Evidence on issues not identified herein, but which a participant considers relevant, is also welcomed.

Issue No. 1

Relating to Item 1 of the attached Order-in-Council,
evidence is requested on:

- (i) the present economic circumstances and the economic outlook for the next 5 to 10 years of the Affected Industries taking account of:
 - (a) Ontario, Canadian and export product demand;
 - (b) effects on the Affected Industries of competition from producers of similar products in Western Canada, the U.S.A. and other foreign countries;
 - (c) the cyclical aspects of the market for the Affected Industries' products;
 - (d) all other factors such as labour costs, productivity, plant efficiency and economies of scale taking into account capacity additions and plant shutdowns in Ontario, Western Canada and the U.S.A.; and
 - (e) factors affecting the Affected Industries' market share taking appropriate account of Ontario's economic outlook.

Issue No. 2

Relating to Item 2 of the attached Order-in-Council,
evidence is requested on:

- (i) the effect of domestic natural gas prices and taxation on the price of products of the Affected Industries;
- (ii) the effect of U.S. natural gas prices (current and future) on the price of products in the U.S.A., similar to those of the Affected Industries;
- (iii) the prices of natural gas to the Affected Industries relative to the prices to other comparable operations which compete in the same market areas;
- (iv) the effect of competition with U.S. products;
- (v) the response, if any, by the federal and provincial governments to any submissions made by the Affected Industries relating to:
 - (a) special pricing or natural gas or tax incentives, or
 - (b) any other form of government subsidy for natural gas used as a feedstock; and
- (vi) the prospects for a continuing natural gas surplus, shut-in gas, and specially priced gas in Western Canada over the next 5 to 10 years, and the potential impact of such prospects on the Affected Industries.

Issue No. 3

Relating to Item 3 of the attached Order-in-Council,
evidence is requested on:

- (i) the alternative arrangements which could be made by the Affected Industries or other Ontario industries to obtain natural gas other than by the current method of purchase from Ontario regulated natural gas distribution utilities, including:
 - (a) details of any such arrangements, their present degree of development and their cost advantage;

- (b) regulatory and other approvals required (if any);
 - (c) the conditions necessary to make such arrangements feasible;
 - (d) operational risks and provisions for back-up supply;
 - (e) precedents, if any; and
 - (f) relevant policies of the federal, Alberta and other provincial governments, if such policies have been publicly announced.
- (ii) the impact of the alternative arrangements on Ontario regulated natural gas distribution utilities, on TransCanada Pipelines, and on their respective customers.
- (iii) the most appropriate:
- (a) terms and conditions of a transportation rate schedule, if any; and
 - (b) financial compensation necessary, if any, to compensate the Ontario regulated natural gas distribution utilities and TransCanada Pipelines for any loss resulting from the arrangements.

Issue No. 4

Relating to Item 4 of the attached Order-in-Council,
evidence is requested on:

- (i) the nature, extent and causes of any disparity in prices and rates among the Ontario distribution utilities for natural gas provided to the Affected Industries.
- (ii) the need for, and design of, any special common rate to be charged by the Ontario regulated natural gas distribution utilities for natural gas used as a feedstock, including the impact of such a rate on:
 - (a) the present rate making process,
 - (b) the rates of other natural gas customers, and

- (c) the Ontario regulated natural gas distribution utilities concerned.

As noted earlier, participants are also requested to make specific recommendations for Board consideration in responding to the Order-in-Council.

In the context of this examination, natural gas used as a feedstock is taken to mean natural gas used as a source of raw material, i.e. a chemical 'building block', and not as a source of energy. An example of an industry using natural gas as a feedstock is the fertilizer industry.

D. H. Rogers
Board Counsel

PARTICIPANTS

Canterra Energy Ltd. (Canterra)

Canterra is a company incorporated under the laws of Canada and based in Calgary. It is active in exploration and production of oil, gas and sulphur.

Counsel: Cas H. Morel, Canterra, Calgary

C-I-L Inc. (C-I-L)

C-I-L has capacity for manufacturing about 375,000 tons per year of ammonia, consuming about 14.47 Bcf per year of natural gas, at its Lambton Works located in Courtright, Ontario. C-I-L is in the process of doubling its ammonia capacity at a cost of over \$200 million. An affiliated company, Cornwall Chemicals Limited, in Cornwall, Ontario consumes about 0.5 Bcf per year of natural gas in the manufacture of carbon bisulphide. C-I-L's parent company is Imperial Chemical Industries PLC, London, England.

Counsel: P. C. P. Thompson, Q.C., Scott & Aylen, Ottawa

Witness: C. Hampson
Senior Vice-President & Director, C-I-L, Toronto

G. R. Tye
Manager, Oil & Gas, C-I-L, Calgary

Dr. A. W. Birnie
Consultant, Ottawa

Consolidated Natural Gas Limited (CNG)

CNG participated on behalf of itself and its corporate affiliates.

CNG is a federally incorporated company with its head office in Calgary. CNG removes natural gas from Alberta under an Alberta removal permit for sale to TransCanada PipeLines Limited (TCPL). Also, CNG purchases gas from TCPL for export under its National Energy Board export licence to U.S. markets. CNG is owned 100 percent by InterNorth Inc. of Omaha, Nebraska.

Counsel: H. M. Kay, Bennett Jones, Calgary

Witness: D. G. Snyder, Vice-President
Engineering and Operations, CNG, Calgary

William J. Demcoe, Vice President
Finance and Corporate Secretary, CNG, Calgary

J. G. Spratt, Principal Officer
Foster Research, Calgary

R. C. Wharton, Senior Corporate Partner
Foster Research, Calgary

G. J. Demke, Principal Officer
Foster Research, Calgary

Consumers Fight Back (CFB)

CFB is an Ontario-based residential consumer group whose concern is in the area of natural gas rates as well as electricity and other utility rates.

Counsel: A. J. Roman
The Public Interest Advocacy Centre, Ottawa &
Toronto

Cyanamid Canada Inc. (Cyanamid)

Cyanamid has capacity for manufacturing about 245,000 tons per year of ammonia, consuming about 7.4 Bcf per year of natural gas, at its Welland Plant in Niagara Falls, Ontario. Cyanamid's parent company is American Cyanamid Company, New Jersey, U.S.A., which operates in the United States. The agricultural ammonia business of Cyanamid Canada and American Cyanamid is organized on a divisional basis (Plant Food Division) regardless of corporate boundaries.

Counsel: E. A. Goodman, Q.C. and
Ms. J. Ryan,
Goodman & Goodman, Toronto

Witness: J. D. Day, General Manager
Plant Food Division, Cyanamid, Toronto

C. A. Larson, President
Consulting Services Inc., Washington, D.C.

D. W. Bain, Treasurer, Cyanamid, Toronto

T. A. Blue, Director
Agricultural Chemicals
SRI International, Menlo Park, Calif.

L. Waverman
Institute of Policy Analysis,
University of Toronto

D. P. Dungan
Institute of Policy Analysis,
University of Toronto

Dome Petroleum Limited (Dome)

Dome, based in Calgary, is a major Canadian explorer, developer and producer of oil and gas. As of March 30, 1983, Dome held 48 percent interest in Dome Canada Limited and 9.6 percent interest in TransCanada PipeLines Limited, which amounted to 21.4 percent when combined with Dome Canada's interest in TCPL.

Counsel: W. M. Smith, Dome, Calgary
R. DeWolf, Dome, Calgary

Witness: R. S. Johnson, Director
Regulatory Affairs, Dome, Calgary

Dow Chemical Canada Inc. (Dow)

Dow's operation at Sarnia, Ontario consumes about 17.5 Bcf/year of natural gas as the primary heat source for a combined power and steam system. Power is used for the electrolysis of natural salt and for the pumps and compressors in manufacturing activities. The steam is used for distillation and evaporation in process operations. Dow is a wholly owned subsidiary of The Dow Chemical Company in the United States.

Counsel: Ms. N. E. Clarke, Dow Canada, Sarnia

Inco Limited (Inco)

Inco's Sudbury operations include mining, smelting and processing which produce nickel, copper, gold, silver, etc. A refinery at Port Colborne produces other nickel products, foundry additives, platinum products and cobalt oxide.

Energy costs for Inco's Ontario Division are about 14 percent of total operating costs or \$86 million per year of which natural gas represents \$30 million. Natural gas consumption at Sudbury has been in the order of 10 Bcf per year, while about 1 Bcf is consumed annually at its refinery in Port Colborne. Closing of the iron ore recovery plant in 1982 and reductions in production rates have reduced Sudbury's annual consumption to 6 Bcf/year. Inco's subsidiary Inco Energy Resources Ltd. (IERL) has been active in western Canada since 1979 in exploration and development of crude oil and natural gas. Also in 1981, IERL and a partner made a major Alberta gas discovery which is currently being developed in separate ventures with Gulf Canada Limited and Canterra Energy Ltd. Production is expected before the end of 1983 under current contracts the two companies hold with TCPL. Residents of record holding voting shares in Inco were 50 percent Canadian, 38 percent American and 12 percent other.

Counsel: T. G. Andrews and

K. W. Scott, Q.C.
Borden and Elliott, Toronto

D. G. Hart, Q.C., Macleod Dixon, Calgary

F. Reilly, Inco, Toronto

Witness: W. R. O. Aitken, Senior Vice-President, Inco,
Toronto

D. B. Craig, President, IERL, Calgary

J. G. Spratt, Principal Officer
Foster Research, Calgary

R. C. Wharton, Senior Corporate Partner
Foster Research, Calgary

G. J. Demke, Principal Officer
Foster Research, Calgary

Independent Petroleum Association of Canada (IPAC)

IPAC, with offices in Calgary, is a national trade association comprising 193 independent oil and gas exploration and production companies operating in Canada and another 138 associate member companies with activities related to the Canadian oil and gas industry. IPAC's main purpose is to represent its members' common interests in policy, economic and technical matters at all levels of government and before all appropriate regulatory boards.

Counsel: R. A. Neufeld, Fenerty, Robertson, Fraser & Hatch,
Calgary

Witness: G. Morgan, Vice-President, Gas and Oil
Alberta Energy Company Ltd., Calgary

J. D. Porter, Managing Director, IPAC, Calgary

F. G. Vetsch, President
Tripet Resources Limited, Calgary

Inter-City Gas Corporation (Inter-City)

Inter-City operates a natural gas distribution utility in the Towns of Fort Frances and Rainy River, and the Township of Emo and Chapple, all in the Province of Ontario.

Counsel: J. D. Brett
Thompson, Dorfman, Sweatman
Barristers and Solicitors, Winnipeg

Nitrochem Inc. (Nitrochem)

Nitrochem has capacity for manufacturing about 90,000 tons per year of ammonia, consuming about 3.34 Bcf per year of natural gas, at Maitland in eastern Ontario. Nitrochem is a successor company to Genstar Chemical Limited, formerly known as Brockville Chemical Industries Limited. On April 1, 1981 the shares of Nitrochem were held 50 percent by Genstar Corporation and 50 percent by Nitrocan Inc., a Canadian holding company for Nitrochem executives.

Counsel: Ms. P. D. Jackson
Tory, Tory, DesLauriers and Binnington, Toronto

Witness: V. G. Johnson, Vice-President, Production
Roxy Petroleum Ltd., Calgary

T. A. Blue, Director
Agricultural Chemicals
SRI International, Menlo Park, Calif.

L. Waverman
Institute of Policy Analysis,
University of Toronto

D. P. Dungan
Institute of Policy Analysis,
University of Toronto

R. W. Grigg, Vice-President and
Chief Financial Officer, Nitrochem, Montreal

E. D. Learoyd
Consulting Engineer, Calgary

Northern and Central Gas Corporation Limited (Northern)

Northern owns and operates natural gas distribution facilities in the provinces of Ontario, Quebec and Manitoba. The Ontario operation serves about 80 communities in northwestern, northern and eastern Ontario. Northern is a wholly owned subsidiary of Norcen Energy Resources Limited.

Counsel: P. F. Scully, General Counsel, Northern, Toronto

Witness: L. L. Hartford
Vice-President, Operations, Northern, Toronto

R. T. Rhodes, Vice-President
Gas Supply and Planning, Northern, Toronto

NOVA, An Alberta Corporation (NOVA)

NOVA of Calgary provides the transmission facilities for the delivery of all gas in Alberta including that for delivery at the Alberta/Saskatchewan border for transmission eastward by TCPL into the various provinces of Canada and in particular the Province of Ontario. NOVA has 50 percent

ownership in the Trans Quebec & Maritimes (TQM) pipeline with the other 50 percent ownership held by TCPL.

Counsel: J. Hopwood, Q.C.
Howard, Mackie, Barristers and Solicitors, Calgary

Petro-Canada Exploration Inc.

Petro-Canada Exploration is a subsidiary of Petro-Canada, a corporation established by a Special Act of the Parliament of Canada, and is based in Calgary. Petro-Canada Exploration conducts exploration, development and marketing programs for oil and gas in Canada and has varied interests in oil and gas wells and related gas plants and has substantial interests in unconnected gas reserves in western Canada and other areas of Canada.

Counsel: Ms. M. Kooyman, Petro-Canada, Calgary

Suncor Inc. (Suncor)*

Suncor is currently upgrading its refinery operation at Sarnia, Ontario. The additional \$335 million investment includes the installation of a hydrogen plant which will consume between 3 and 5 Bcf/year of natural gas. Suncor is a fully integrated petroleum company comprising two operating groups: the Resources Group based in Calgary and the Sunoco Group in Toronto. The Resources Group manages

* The name Sunoco is used generally throughout the report.

the company's conventional oil and gas exploration/production business and its oil sands mining operation. The Sunoco Group operates the Sarnia refinery, produces and sells petrochemicals, gasoline, home heating oil and other refined products. It operates retail gasoline service stations in Ontario and Quebec. About 75 percent of Suncor's common shares are held by Sun Company, Inc. of the United States and 25 percent are owned by Ontario Energy Resources Ltd.

Counsel: M. M. Peterson
Tilley, Carson & Findlay, Toronto
G. M. McGuire, Sunoco Inc., Toronto

Witness: N. J. Hathway, Director
Supply and Transportation
Sunoco Inc., Toronto

The Consumers' Gas Company Ltd. (Consumers')

Consumers' is a natural gas distribution utility which serves south central and eastern Ontario, western Quebec and northern New York State. Consumers' also explores for and produces oil and gas primarily in southwestern Ontario and operates underground gas storage facilities in Ontario. About 90 percent of Consumers' common shares are owned by Hiram Walker Resources Ltd. Home Oil Company, a wholly owned subsidiary of Hiram Walker Resources Ltd., is engaged

in the exploration for and production of oil and natural gas primarily in Canada and the United States.

Counsel: P. Y. Atkinson
Aird & Berlis, Toronto
Witness: R. S. Loughheed, Senior Vice-President
Gas Supply and Development, Consumers', Toronto

The Director of Investigation and Research
Bureau of Competition Policy
Consumer and Corporate Affairs Canada

The mandate of the Bureau of Competition Policy is to assist in maintaining effective competition as a prime stimulus to the achievement of maximum production, distribution and employment in the Canadian marketplace. The Bureau's authority is the Combines Investigation Act.

Counsel: R.S.G. Thompson) Department of Consumer
Ms. R. Attwood) and Corporate Affairs,
M. Rosenberg) Ottawa

The Industrial Gas Users Association (IGUA)

IGUA is an association of industrial users of substantial quantities of natural gas purchased from distributors in the Provinces of Manitoba, Ontario and Quebec.

Counsel: B. Carroll
Scott & Aylen, Ottawa

TransCanada Pipelines Limited (TCPL)

TCPL was incorporated by Special Act of the Parliament of Canada in 1951 and is currently continued under Restated Certificate and Articles of Incorporation under the Canada Business Corporations Act. TCPL owns and operates Canada's only west/east natural gas transmission system from Alberta to Quebec. TCPL is the major purchaser of western natural gas for eastern Canadian markets and U.S. export markets. TCPL also transports natural gas for other companies. TCPL has extensive holdings of oil and gas lands in Canada and participates in oil and gas exploration in Canada and the United States.

Counsel: R. B. Cohen, TCPL, Toronto
J. M. Murray, TCPL, Toronto

Witness: C. R. Frew
Senior Manager, Operations, TCPL, Calgary
B. E. Hulse
Senior Manager, Sales, TCPL, Toronto

Union Gas Limited (Union)

Union owns and operates a fully integrated gas transmission, distribution and storage system in southwestern Ontario. Union's ten underground storage pools and 2,920 kilometres of transmission pipeline are an important part of the delivery system for western Canadian gas. As well as serving Union's own markets, these

facilities generate significant revenue from storage and transmission service provided to other customers. Resource operations in western Canada are carried on through Union's 65 percent-owned subsidiary, Precambrian Shield Resources Limited of Canada. Oil and gas exploration and development are conducted also in association with Numac Oil & Gas Ltd. of Edmonton, in which Union holds a 12.4 percent equity interest.

Counsel: J. B. Jolley, Q.C., Vice-President and General Counsel, Union, Chatham

Witness: S. T. Bellringer, Vice-President
Utility Development, Union, Chatham

G. D. Black, Manager
Gas Supply, Union, Chatham

A. L. Shillington, Manager
Regulatory Planning, Union, Chatham

Universal Explorations Ltd.

Universal Explorations is an Alberta corporation whose primary activity is petroleum exploration and development in Alberta. Also, it holds mineral rights in southwestern Ontario. Through its subsidiary, The Petrol Oil & Gas Company, Limited, it produces and sells natural gas from offshore Louisiana and Texas. Some of this gas is used as feedstock by American fertilizer and chemical companies.

Counsel: D. J. Buchanan, Secretary-Treasurer, Universal Explorations, Calgary

Witness: J. A. Mercier, President, Universal Explorations
Ltd., Calgary

Urban Development Institute - Apartment Group (UDI)

UDI is an organization of property managers who purchase natural gas, essentially as a fuel for apartment heating, from the major gas utilities in Ontario.

Representative: S. J. Kawalec, P. Eng., Chatham

Ontario Energy Board

Counsel: D. H. Rogers, Q.C.
Rogers, Rogers, Moore, Toronto
Ms. D. S. Saxe, Board Counsel

Witness: Ms. S. L. Chown, Executive Vice President,
Industrial Economics, Incorporated
Cambridge, Mass.

Appendix C

GLOSSARY

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Affected Industries

- Industries which use natural gas as a feedstock and are located in Ontario. For the purpose of this report, the Affected Industries are C-I-L, Cyanamid, Nitrochem, Inco and Sunoco.

Alberta Border Price (ABP)

- In accordance with the June 30, 1983 Agreement to Amend the Memorandum of Agreement of September 1, 1981 between the Government of Canada and the Government of Alberta, the ABP equals the wholesale price of natural gas at the Toronto City Gate less TCPL Cost of Service, the Canadian Ownership Special Charge and the federal Natural Gas & Gas Liquids Tax, if any. The Toronto City Gate wholesale price to the natural gas distributor is approximately 65 percent of the Toronto Refinery Acquisition Cost for crude oil on an equivalent energy basis.

On August 1, 1983 the ABP was set at Cdn. \$2.8257 per Mcf. To the end of 1984, the price of natural gas in Canada will be no higher than 65 percent of the price of crude oil, as agreed by the two governments.

Alberta Cost Of Service (ACOS)

- The ACOS consists of the costs and charges relating to the acquisition and movement of natural gas, including transportation by NOVA, from the point of purchase to the Alberta border, excluding the purchase price. Original buyers that remove natural gas from Alberta apply to the Alberta Petroleum Marketing Commission (APMC) each month for determination of the ACOS in respect of gas purchased in the month. The APMC makes determinations for ten original buyers, some of which apply for two or more costs of service, depending on the points of removal from Alberta, areas of supply and types of purchase contracts.

In the case of natural gas purchased by an original buyer that does not remove gas from Alberta, the APMC estimates an amount that would be the ACOS if the gas were removed from Alberta. This estimate is then used to determine the maximum price which the original buyer may pay for such gas.

Upon application by an original buyer or on its own initiative, the APMC makes rulings on matters of principle and matters involving categories of costs and

charges eligible for inclusion in the ACOS. One example is the discretionary inclusion of TOPGAS interest costs in ACOS requiring TCPL to apply each year to the APMC.

Any such determination made by the APMC may be appealed to the Alberta Public Utilities Board for public hearing.

Alberta Energy Resources Conservation Board (AERCB)

- Under the Statutes of Alberta, the AERCB is charged with certain energy resource and environmental management functions with regard to oil, gas, oil sands, pipelines, electric energy and coal. Those concerning energy resources include appraisal of reserves; regulation of exploration, development, pipelines, and transmission lines; safety; prevention of waste; protection of correlative rights; appraisal of productive capacities, of Alberta's requirements and of markets outside Alberta; recording and publication of statistics; and advice to Government.

Also, the AERCB is responsible for the preservation and effective use of certain of Alberta's energy

resources. To this end, the AERCB, under The Gas Resources Preservation Act, is required to consider applications for the removal of gas from Alberta, and having regard to the trends in growth and discovery and present and future needs for gas within Alberta may, subject to the approval of the Lieutenant Governor in Council, grant a permit for removal from the Province.

Under The Oil and Gas Conservation Act, the AERCB may grant an industrial development permit for the use of gas or other hydrocarbons as a raw material or fuel in an industrial or manufacturing operation in Alberta.

Alberta Petroleum Marketing Commission (APMC)

- The Petroleum Marketing Act created the APMC in 1974 as agent to sell the Crown's royalty share and lessee's share of petroleum and pentanes plus from Crown leases. Also, the functions and responsibilities of the APMC with respect to the Natural Gas Pricing Agreement Act concerning the Canada - Alberta agreement on natural gas pricing are as follows:
 - determination of Alberta costs of service (ACOS) for original buyers;

- purchase of gas and its subsequent resale;
- administration of the Natural Gas Pricing Agreement Act Fund (the Fund) comprising revenues derived from gas exports to the United States;
- determination of a price adjustment to be paid each month to producers with respect to eligible gas;
- reimbursement or payment of a price adjustment from revenues in the Fund; and
- determination and payment of market development incentive payments to the federal government from the Fund.

For more detail refer to Alberta Cost of Service in glossary.

Ammonia Market

- Ammonia, a chemical compound of nitrogen and hydrogen (NH_3), can be used directly as a fertilizer but is usually converted into such nitrogen fertilizer

derivatives as urea, ammonium nitrate, ammonium phosphates and nitrogen solutions. Ammonia is also used as a raw material in the production of explosives and synthetic fibres and in a wide variety of other industrial applications.

Commodity Cost

- Commodity or variable costs are those costs which vary in direct proportion to the volume of gas produced or handled. These costs are not directly related to either the number of customers or the capacity of the system facilities.

Contract Carrier

- The status of a natural gas pipeline that transports gas from a producer to a buyer who have entered into a contract for the gas. Such status does not prevent the pipeline from purchasing other gas from producers on its own account; however, it does introduce an alternative whereby producers and distributors can negotiate a direct access arrangement without involving the pipeline in the procurement or sales of the gas. The pipeline would be paid a transportation service charge by the shipper in accordance with the tariff

schedule and terms therein as defined and approved by the appropriate regulatory authority.

Contract Demand (CD)

- Contract demand is the maximum volume of gas specified in the gas sales contract to which a CD Rate Schedule is applicable and which the seller obligates itself to be ready to deliver daily to the buyer in a specified delivery area.

Cost Allocation

- Cost allocation refers to the process of estimating the "sub" costs attributable to serving each class of customer of a utility as a portion of the total costs incurred by the utility in serving all of its customers.

Decremental Rate

- In the context of this hearing, a decremental rate reflects the costs which could be avoided if the gas distributors in Ontario were to lose the ammonia producers' load. As such, the decremental rate is equivalent to the variable costs which a distributor would incur in providing natural gas service.

Demand Costs and Demand Charges

- Costs that are related to the ability to meet peak gas demand, such as the fixed costs of transmission and distribution capacity. Demand costs are recovered by means of a demand charge that is levied on the customer who has contracted for firm service at a specified level of demand.

FERC

- The Federal Energy Regulatory Commission is an independent, five-member commission within the U.S. Department of Energy. It establishes rates or charges for all pipeline transport and pipeline valuation; regulates wholesale electric rates, natural gas sales and transmission rates; licenses construction and abandonment of facilities; and approves interlocking directorates. FERC controls apply to natural gas entering interstate commerce.

Gulf Coast

- From a market point of view, the U.S. Gulf Coast is viewed as all the U.S. states or regions of the U.S. states that border on the coast of the Gulf of Mexico, comprising Florida, southern Georgia, Alabama,

Mississippi, Louisiana and the coastal portions of Texas. With reference to the influence of U.S. ammonia production capacity on the marketplace, the significant states are Louisiana and Mississippi.

Metric Conversion

1 tonne	=	1	metric ton
	=	1000	kilograms
	=	2204.6	pounds
	=	1.1023	short tons
1 short ton	=	2000	pounds
	=	0.9072	tonne
1 cubic metre (m^3)	=	35.3	cubic feet
	=	0.0353	Mcf
1 Mcf (thousand cubic feet)	=	28.328	m^3
1 thousand cubic metres ($10^3 m^3$)	=	35.3	Mcf
1 MMcf (million cubic feet)	=	28.328	$10^3 m^3$
1 million cubic metres ($10^6 m^3$)	=	35.3	MMcf
	=	0.0353	Bcf
1 Bcf (billion cubic feet)	=	28.328	$10^6 m^3$

Natural Gas Feedstock

- Natural gas used as a source of raw material, i.e. a chemical "building block", and not as a source of energy.

Public Utilities Income Tax Transfer Act (Canada)

- Under the provisions of this Act, 95 percent of the money paid to the Government of Canada by utility companies as income tax or estimated income tax payable under the Income Tax Act (Canada) for the year 1966 or any subsequent taxation year is transferred to the respective provincial governments.

SOQUIP

- Societe quebecoise d'initiatives petrolieres (SOQUIP) is a Crown corporation created by the Government of Quebec in 1969 for the purpose of exploring for, producing and selling hydrocarbons. In 1975 it extended its exploration program beyond Quebec into western Canada and now holds proven and probable reserves of 52 billion cubic feet of natural gas. SOQUIP has property interests with other producers in Alberta. On July 27, 1983, SOQUIP was issued a permit to remove one billion cubic metres (3.5 Bcf) of gas from Alberta over a 15-year period. This gas is to be sold at the Alberta/Saskatchewan border by SOQUIP to GMi, a distributor in Quebec. The distributor is the shipper and TCPL is the transporter from the Alberta border to the shipper's franchise.

SOQUIP owns 20.2 percent of the common shares of Gaz Metropolitain, inc. (GMI) and 49 percent of the common shares of Gaz Inter-Cite Quebec Inc. (GICQ). Together with the Caisse de depot et placement du Quebec, it holds the control of these two distributors. Inter-City Gas Corporation of Winnipeg holds 49 percent of GICQ's common shares.

Take-or-Pay Clause

- A provision in a contract between a gas transmission company or gas purchaser and a gas producer whereby the transmission company or the purchaser agrees to pay the producer for a specified percentage of the natural gas under contract regardless of whether the gas is actually taken.

The purpose of the take-or-pay clause is to guarantee the producers a yearly cash flow. It is advantageous to all parties if demand remains about the same or increases, but can be damaging to the transmission company or purchaser if demand falls. The TOPGAS Agreement was implemented by TCPL as a means of resolving the current take-or-pay difficulties caused by overestimating the market. The take-or-pay provision is not being applied to current CD contracts

between TCPL and the distribution utilities. However, the latter are required to pay the demand charges for contracted demand so that TCPL can recover the costs associated with the provision of the facilities required to ensure reliable (firm) service to the utilities.

The Fertilizer Institute (TFI)

- TFI is an association of producers and marketers of fertilizer in the U.S.A. One of its services to members is the compilation of the Ammonia Production Cost Survey twice each year for the year ending June 30 and December 31 by Ernst & Whinney, Washington, D.C., which acts in the capacity of confidential agent. The data reported include the weighted average unit cost of natural gas to the U.S. ammonia producers responding in each survey.

TOPGAS Agreement

- Most of TCPL's gas purchase contracts have provisions requiring "take-or-pay" payments by TCPL when it is unable to take specified minimum quantities of gas for delivery. It has been necessary to make such payments because the contracted supply has exceeded the available market in recent years. TCPL was able to

finance this take-or-pay obligation pursuant to the TOPGAS Agreement on terms which reduced TCPL's continuing take-or-pay obligation to 60 percent of its minimum 1981/82 contract year level or 75 percent of the 1982/83 contract year obligation level, whichever is the lesser.

The interest costs associated with the funds advanced by TOPGAS Holdings Limited (TOPGAS), an Alberta corporation controlled by a banking consortium, to the producers is recovered in TCPL's Alberta cost of service and remitted to TOPGAS by TCPL. TCPL must apply to the Alberta Petroleum Marketing Commission each year, and inclusion of interest costs in the Alberta cost of service is discretionary.

The total funds advanced by TOPGAS amounted to approximately \$2.3 billion as of the end of 1982. TOPGAS will recover the advances to the producers in installments beginning November 1, 1984, through TCPL's nomination for delivery of prepaid gas from the producers. Recovery is scheduled to be completed by 1994.

At the time of the hearing, TCPL was about to negotiate a new TOPGAS agreement in order to deal with the estimated \$400 million in additional take-or-pay expected to be incurred in 1983. If negotiations fail TCPL will have to finance these take-or-pay payments itself.

T-Service

- Transportation service provided by TCPL to any shipper subject to the terms of the Availability Section in TCPL's T-Rate Schedule. The fact that a requirement to be served by a T-Service applicant is not incremental (i.e. it has previously been served by a distributor from gas supply obtained under contract with TCPL) does not of itself disqualify that applicant. TCPL must provide the service if the applicant qualifies under the Tariff, or if directed to do so by order of the NEB.

